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NOTES

THE report on the excavation at Maski, carried out by the Department of Archaeology in 1954, almost exclusively covers the present number of *Ancient India*. The sequence of cultures revealed at the site is comparable with that occurring at Brahmagiri, situated in the same geographical horizon,—a succession of three cultures, chalcolithic, megalithic and early historical, the first and the third closely following their Brahmagiri counterparts. The second culture at the two places differed from each other in some of their tomb-types but did not lack an essential commonness. Parenthetically, the identity of the stratigraphic position of the megalithic culture at both the sites adds strength to the belief that variations in the megalithic tomb-types are merely regional and do not indicate any wide chronological disparity. After Brahmagiri, megalithic monuments have been excavated at many places in the south, and superficial explorations have been no less fruitful. The data obtained at Maski are a welcome addition to our knowledge.

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The chalcolithic culture, mentioned above, was commented upon in the editorial Notes in the last number of *Ancient India*, to bring into focus the fact of its occurrence over a widely-distributed area covering central India and the Deccan and its various phases as represented at different sites. Any generalization, based on inchoate investigations, about the correspondence among the phases, is liable to be premature and misleading, and it is best, for the present, to study the phases intensively on a zonal basis. This provided, the excavator of Maski has done well in analysing in his report (below, pp. 20-24) the currently-known elements of the culture. The analysis itself implicity emphasizes the needs for further researches and for a constant alertness in comparatively studying the material obtained by different excavators. The latter need is all the more imperative today than ever before, for the monopoly of the Department of Archaeology in excavations is, happily, a thing of the past, and many an expert hand is at present turning the soil to produce rich archaeological harvests.

A direct result of the disappearance of the monopoly is the necessity for co-ordination among field-workers, and it is gratifying that this is realized by all. Exhibitions of excavated material and conferences among workers, which have now become a regular

annual feature in the country, are helping in the acquaintance of one another's activities and are providing a forum for the discussion of archaeological problems and for stock-taking.

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During the last few years, valuable evidence about the stratigraphic sequence of cultures has been obtained at a large number of sites, particularly in northern and central India and the Deccan, at most of which a chronological datum-line, in about the middle of the first millennium B.C., is provided by the Northern Black Polished Ware. This may be regarded as the advent of the historical period, bringing with it, *inter alia*, a system of currency and iron (though the occurrence of the latter has recently been reported at a few sites in a somewhat earlier period as well). Links connecting the period represented by the Ware with the earlier ones are not altogether wanting, but it would be presumptuous, with our present-day knowledge, to declare that there was an unbroken continuity of cultural tradition. Speaking of the preceding millennium, while the Harappa culture of Gujarat may, in some ways, be regarded as having developed (or degenerated) into the succeeding culture (the remains of which have just now been traced as far south as the Narmada estuary), the absence in the latter of seals, ribbon-flakes and other elements, so characteristic of the true Harappa, does not, on the whole, encourage the idea of a continuous evolution. Similarly, at the only excavated site with Harappan relics and the Painted Grey Ware, there is a distinct break between the two cultures (*Ancient India*, nos. 10-11, p. 2).

We do not know what ethnic or other factors might have been responsible for the introduction of new culture-traits and the disappearance of old ones from time to time. Nor is there any denying that wide gaps in our knowledge still persist and are bound to persist for some time to come. Nevertheless, the cultures discovered during the last few years go a long way in illuminating some of the dark corners of the protohistoric archaeology of India.

* * * * * *

The identification of new archaeological cultures and their sequential dating have been, to a large extent, possible by the *vertical excavation* of the key-sites. Such excavation has till now only partially fulfilled its purpose, which is to provide a 'cultural time-table' (*Ancient India*, no. 5, p. 10): it has still to be resorted to all over India for many years to come, to establish the succession of cultures that each region underwent, to bring to light new cultures or new phases of known ones, to guide the future activities to the needed direction.

At the same time, it is felt that a stage of development has been reached when large-scale *horizontal excavations* should be initiated at a few selected sites and with specific objectives in view. The selection of the sites that should be subjected to such excavations is important but not difficult. It is obvious that the choice will fall on sites, or portions thereof, where the levels of the culture to be exposed are not separated from the top by enormous later accumulations, the systematic and well-recorded removal of which will be a forbidding task. Simultaneously, the site must be extensive enough to have been a settlement of a fair size: tiny hamlets or camp-sites are not likely to yield

the desired results. Further, the horizontal excavation of a site of unknown possibilities may prove wasteful; even at a site with established potentialities, it should be preceded by a vertical excavation.

What the objectives of horizontal excavations for the next few years should be is abundantly clear: to lay bare the relics of the newly-discovered cultures comprehensively, so that they can be viewed as the components of a coherent unit, as the trees constituting the wood, which is at present not seen. Without horizontal excavation, the early man will never reveal himself to us in his fulness, and our knowledge of the culture to which he belonged will remain circumscribed by the limitations imposed by the dimensions of the trench.

* * * * * *

Side by side with protohistoric research, prehistoric investigations are also taking rapid strides. Not only have a large number of sites along river-sections yielding palaeolithic tools been located, but a clear-cut stratigraphic and typological distinction between implements of Series I and II, first recognized in south-east India in 1930 by Cammiade and Burkitt, has taken shape. Further, the co-occurrence of implements of the Sohan and Madras traditions has been noticed at many a site, giving a fresh aspect to the question of diffusion.

To put the prehistoric exploration of the Department of Archaeology on a firm basis, its Prehistory Section has recently been reinforced, and a clear-cut programme of work framed. To start with, the Section will, in collaboration with the Deccan College Post-graduate and Research Institute, undertake a survey of the upper Beas valley, already known for its yield of palaeoliths. It is simultaneously necessary to undertake geochronological studies, for which also the Chemical Branch of the Department is being equipped. Concerted action will, it is hoped, bring with it further progress on systematic lines.

A. Ghosh

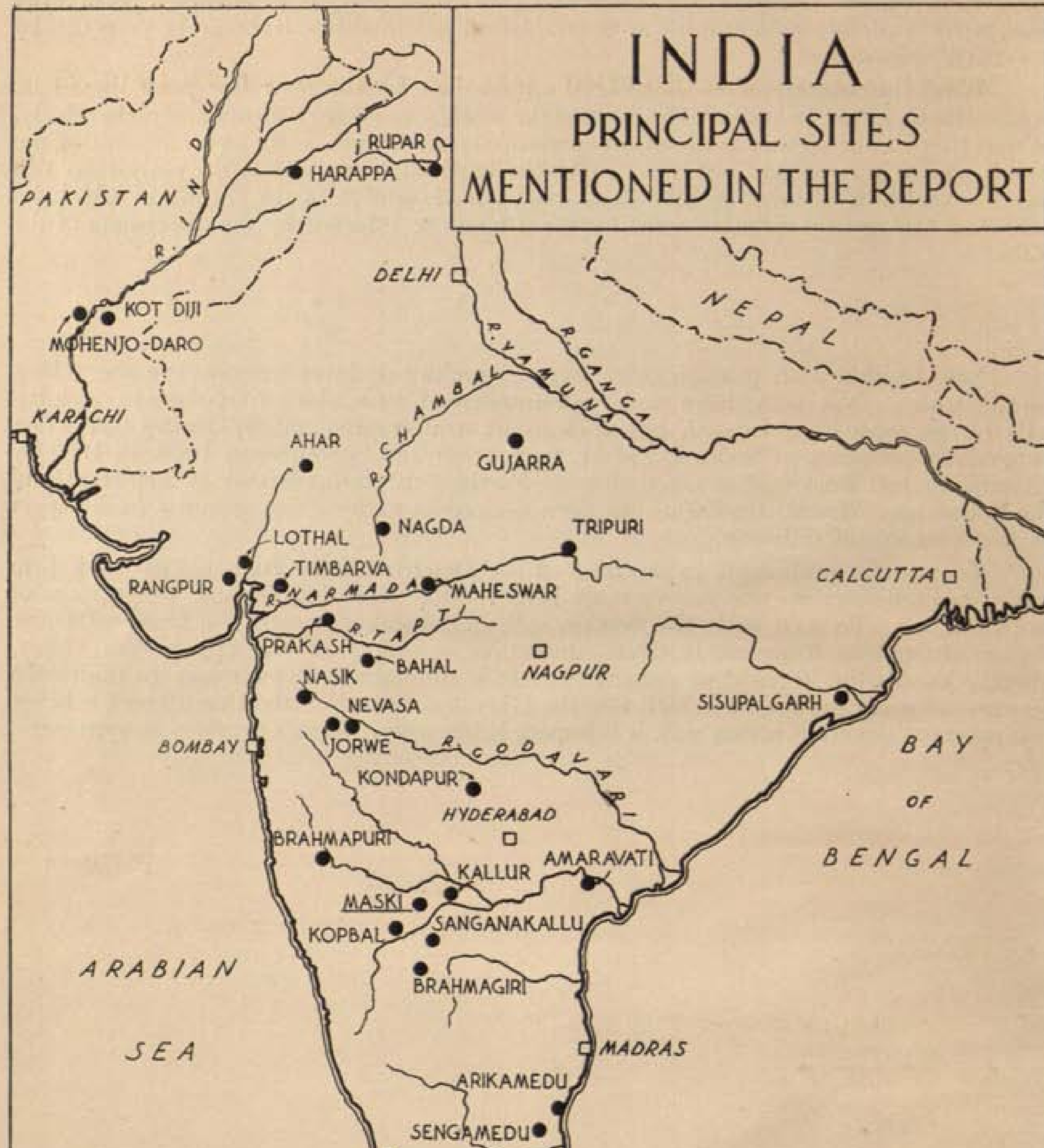

INDIA
PRINCIPAL SITES
MENTIONED IN THE REPORT
PAKISTAN
R. INDUS
RUPAR
HARAPPA
DELHI
NEPAL
KOT DIJI
MOHENJO-DARO
R. YAMUNA
R. GANGA
KARACHI
R. CHAMBAL
AHAR
GUJARRA
NAGDA
TRIPURI
LOTHAL
TIMBARVA
RANGPUR
R. NARMADA
MAHESWAR
CALCUTTA
R. TAPTI
PRAKASH
BAHAL
NAGPUR
NASIK
NEVASA
SISUPALGARH
BOMBAY
JORWE
R. GODAVARI
BAY
KONDAPUR
OF
HYDERABAD
BRAHMAPURI
BENGAL
KALLUR
AMARAVATI
MASKI
KOPBAL
SANGANAKALLU
ARABIAN
BRAHMAGIRI
SEA
MADRAS
ARIKAMEDU
SENGAMEDU
PORKALAM
SCALE OF KILOMETRES
200 0 200 400
SCALE OF MILES
100 0 100 200 300
ADICHANALLUR

FIG. 1

MASKI 1954: A CHALCOLITHIC SITE OF THE SOUTHERN DECCAN

By B. K. Thapar

CONTENTS

1. INTRODUCTORY

A. Planning

UNTIL about a decade ago the Deccan featured largely as a blank in the protohistory of India. Besides isolated instances of stone artefacts, collected on an unscientific and selective basis as a result of sporadic explorations, almost nothing was known about the cultural pattern or stratigraphic sequence prior to the Śātavāhana period. A yawning gulf was thought to exist between the (loosely-termed) prehistoric and early historical periods. Of the Neolithic Age very little was known beyond the types and shapes of the implements. The results of the excavation at Brahmagiri in 1947[1] for the first time provided a framework for the succession of cultures and their chronology in the Deccan; the three cultures, Stone Axe, Megalithic and Andhra, revealed here were identified with definite industries, thus making the utilization of the chronological results possible elsewhere.

To carry the evidence progressively further north for archaeologically integrating the sub-continent was a matter of 'strategic planning'.[2] On the eastern flank the site of Śiśupālgarh, excavated during the field-seasons of 1948-50,[3] proved more than a success,

[1] R. E. M. Wheeler, ' Brahmagiri and Chandravalli 1947: megalithic and other cultures in Mysore State', *Ancient India*, no. 4 (1947-48), pp. 180-310.

[2] Cf. R. E. M. Wheeler, 'Archaeological field-work in India: planning ahead', *Ancient India*, no. 5 (1949), pp. 4-11; also *Archaeology from the Earth* (Oxford, 1954), pp. 119-25.

[3] B. B. Lal, 'Śiśupālgarh 1948: an early historical fort in eastern India', *Ancient India*, no. 5 (1949), pp. 62-105.

since a recognizable element in the shape of the now-famous Rouletted Ware, first identified at Arikamedu,[1] about 370 miles south-east, was duly recorded in stratified relationship with distinctive northern ceramics. Such a single-hoplong leap was, however, not possible on the western flank, where the problem was of a special kind. Persistent field-work nevertheless brought to light in western and central India a presumably post-Harappan chalcolithic culture, distinguished mainly by a painted pottery (black designs on red-slipped surface), microliths and a restricted presence of copper, and excavations at Nasik, Jorwe[2] and Maheswar[3] (fig. 1) placed this distinctive culture in a stratified sequence. In order, therefore, to link up or correlate this sequence with that of Brahmagiri, a methodical advance up the Deccan was the desideratum. Such an advance had already been envisaged.[4] Two sites attracted our attention: Herakal, near Bagalkot in Karnataka, and Maski, the famous site of the Aśokan edict, till recently in Hyderabad State. The former being badly disturbed was ruled out. Choice fell therefore upon the latter, which, like Brahmagiri, had a megalithic cemetery adjoining the habitation-site. It offered, therefore, all the archaeological requisites for checking up and further elaborating the culture-sequence obtained at Brahmagiri. It may be noted in retrospect that besides fulfilling this objective of corroborating the Brahmagiri evidence, the excavation at Maski produced much that is new and of interest.

B. Previous work

The finds from Maski were first seriously studied by Robert Bruce Foote,[5] who visited Maski between the years 1870 and 1888 during his investigations of the geology of Raichur District. For about half a century since then the site remained noted for its assemblage of stone implements. In the meantime the creation, in June 1914, of an Archaeological Department for the former Hyderabad State proved a good augury, for in the beginning of the following year C. Beadon, a mining engineer, prospecting for gold in the District, chanced to discover at Maski the now-famous Aśokan edict, which significantly mentions the name Aśoka as its author.[6] As a result thereof the site sprang into importance and attracted further archaeological attention. In 1928-29 Captain Leonard Munn, Special Officer in charge of the Hyderabad Geological Survey, wrote some letters regarding antiquities in Raichur District, in which Maski featured prominently. On the basis of the collected finds a plea was made for a careful excavation.[7] Again in 1934 he reviewed *inter alia* the finds from this site.[8] Little or no advance in knowledge was, however, achieved until the years 1935-37, when the State Archaeological Department conducted

[1] R. E. M. Wheeler, A. Ghosh and Krishna Deva, 'Arikamedu: an Indo-Roman trading-station on the east coast of India', *Ancient India*, no. 2 (1946), pp. 17-124.

[2] H. D. Sankalia, and S. B. Deo *Report on the Excavations at Nasik and Jorwe 1950-51* (Poona, 1955).

[3] H. D. Sankalia, B. Subbarao and S. B. Deo, 'The archaeological sequence of central India', *South-western Journal of Anthropology*, 9, no. 4 (1953), pp. 343-56.

[4] Wheeler, *Ancient India*, no. 5, *op. cit.*, pp. 9 and 10.

[5] R. Bruce Foote, *The Foote Collection of Indian Prehistoric and Protohistoric Antiquities, Catalogue Raisonné* (Madras, 1914), pp. 179-83; also *Notes on their Ages and Distribution* (Madras, 1916), pp. 125-26.

[6] H. Krishna Sastri, *The New Aśokan Edict of Maski*, Hyderabad Arch. Series, no. 1 (Calcutta, 1915). In all other edicts, except the one recently discovered at Gujarra, *Indian Archaeology 1954-55—A Review* (New Delhi, 1955), p. 27, the emperor calls himself only Piyadasi.

[7] 'Letters from L. Munn regarding antiquities in the Raichur District', *An. Rep. Arch. Dept. H.E.H. the Nizam's Dominions for the year 1927-28* (Calcutta, 1930), pp. 26-27.

[8] L. Munn, 'Prehistoric and protohistoric finds', *Jour. Hyderabad Geol. Surv.*, II, pt. 1 (1934), pp. 121-35.

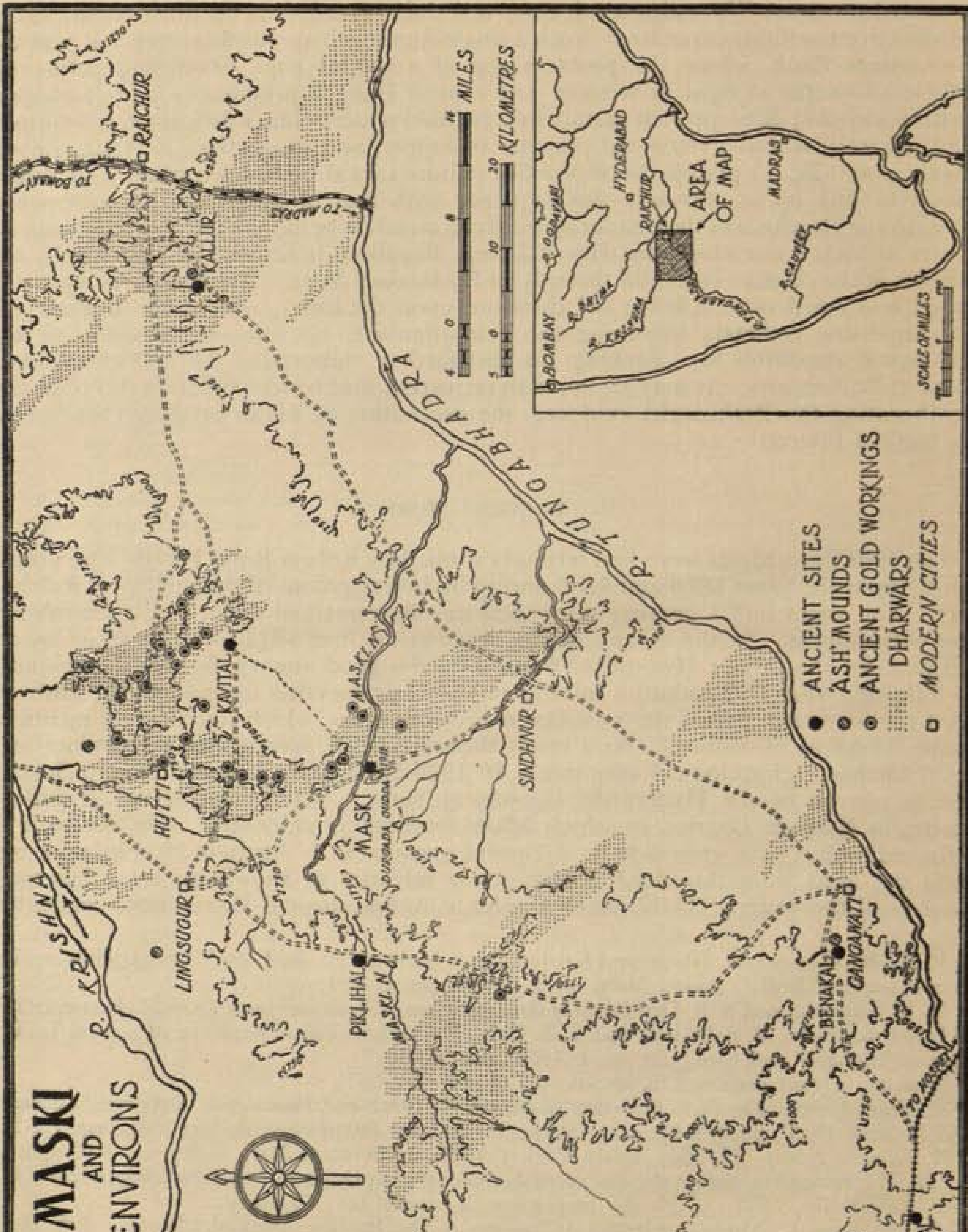


FIG. 2. (*After the Hyderabad Geological Survey maps of the Raichur Doab*)

fairly large-scale excavations at the site,[1] which, through the bulk of their proceeds, if obtained without proper regard to stratigraphy, clearly indicated the importance of the site for the early archaeology of the Deccan. Attracted, but not without apparent dismay, by a review of these excavations by F. J. Richards,[2] D. H. and M. E. Gordon assiduously examined the whole evidence, which they found lacking in archaeological discipline.[3] One of the outstanding discoveries of these excavations was a terracotta cylinder-seal (pl. XVII B) simulating the Mesopotamian cylinder-seal series.[4] Attention was drawn to the notable features of this seal with its possible Sumerian contacts by Stuart Piggott in 1944;[5] in the absence of a reliable stratigraphical context of the prehistoric culture represented by numerous stone axes and chert blades, etc., he had to base his observations on purely 'stylistic criteria'. For a proper assessment of the evidence and for obtaining an ordered sequence a systematic excavation was a matter of necessity, which was duly fulfilled by the present work undertaken in the months of January-March 1954.

C. Acknowledgements

The excavation described here was carried out by the South-western Circle of the Department of Archaeology, in collaboration with the Hyderabad Archaeological Department, under my direction and with assistance from Dr. P. Sreenivasachar, Director of the State Department of Archaeology, and Shrimati D. Mitra, now a Superintendent in the Department of Archaeology. Shri H. K. Bose, Assistant Anthropologist, Department of Anthropology, and Shri R. N. Gupta, Anthropological Assistant in the Excavations Branch of the Department of Archaeology, rendered skilful aid in exposing and cleaning the skeletal remains in the burials. The drawings were variously prepared by Shri V. B. Mathadhikari, Shri S. P. Mote and Shri S. K. Jagtap of the South-western Circle and Shri Raghubir Singh, Shri Gauri Shankar, Shri Jassu Ram and Shri A. K. Ghosh of the Director General's office. The photographs were taken by Shri M. B. Limaye, then photographer in the South-western Circle. Dr. D. C. Sircar, then Government Epigraphist, and Shri Z. A. Desai, Assistant Superintendent for Epigraphy, very kindly identified the coins, while Dr. B. B. Lal, Archaeological Chemist in India, chemically analysed the painted sherds from Period I. To all these I am deeply beholden for the assistance generously and willingly given. I would also like to express my gratitude to the Director, Department of Anthropology, for having the animal-remains examined by his Vertebrate Zoologist, Shri Bhola Nath, to the Officer-in-Charge and the Head of the Department of Tertiary Palaeobotany and Palynology, Birbal Sahni Institute of Palaeobotany, Lucknow, for having the soil-samples investigated for pollen-grains by Shri Vishnu Mittre and to Shri S. S. Ghosh, Officer-in-Charge, Wood Anatomy Branch, Forest Research Institute, Dehra Dun, and Dr. K. A. Chowdhury, formerly of the same Institute, for the report on the plant-remains. Thanks are also due to Messrs Basil Gray and Richard Barnett, both of the British Museum, London, for kindly examining the terracotta cylinder-seal found previously for its foreign affinities.

[1] *An. Rep. Arch. Dept. H.E.H. the Nizam's Dominions for the years 1935-36* and *1936-37* (Calcutta, 1938 and 1939), pp. 19-31 and 14-16 respectively.

[2] *Antiquity*, XIII, no. 52 (Dec. 1939), p. 469.

[3] D. H. and M. E. Gordon, 'The cultures of Maski and Madhavpur', *Jour. Roy. Asiatic Soc. Beng.*, IX, no. 1 (1943), pp. 83-97.

[4] *An. Rep. Arch. Dept. H.E.H. the Nizam's Dominions for the year 1936-37*, p. 15 and pl. XIII(a).

[5] Stuart Piggott, 'A cylinder-seal from south India', *Antiquity*, XVIII, no. 70 (June 1944), pp. 98-99.

2. THE SITE AND ITS ENVIRONS (fig. 2; pls. I-IV)

Maski, 15° 57′ 30″ N. Lat. and 76° 39′ 15″ E. Long., lies in Lingsugur Taluk of Raichur District, formerly in Hyderabad State and now included in Mysore State. To the north of the village flows the Maski nullah, a tributary of the Tungabhadra. The place can be reached by road from Raichur, a railway-station on the Bombay-Madras section of the Central and Southern Railways, either *via* Lingsugur, a distance of nearly 75 miles, or by a shorter route of 52 miles *via* Kavital. There is a regular State bus-service connecting these places.

The ancient site is located to the west of the present village and is surrounded on three sides by gneissic outcrops rising some 400 ft. above the plains. The largest of these outcrops, known as Durgada Gudda (△1911) and measuring over 1½ miles long and 5 furlongs wide (cf. Survey of India Topographical Sheet 57A/NE), constitutes one of the most conspicuous features of the landscape. Access to the river is obtained through a gorge on the north side, where traces of an old path still exist. An erosional water-course traverses the hill-girt valley from west to east and indicates in its sections the extent of the ancient township, which covered nearly 50 acres. The main area of occupation lay, as at Brahmagiri, on the slopy ground along the foot of the hills. To the folk who first settled on the site and made microliths, the attractions of the area for the mode of life pursued by them must have been manifold. The condition of the hilly country with a dry soil was ideal for settlement, for water in the form of a river was at hand.

On the western face of the Durgada Gudda, towards the northern tip, is located the famous inscription of Aśoka, a version of the Minor Rock-edict. The inscription proper, consisting of only eight lines, is in a rock-shelter[1] and, unlike other places, faces the interior. The spurs of the hillocks are crowned with three temples, of which the Mallikārjuna, ascribable to *circa* thirteenth century and reached by a flight of steps rising from the plains, is the most frequented. The other two are known as the Manappaya (goldsmith's) temple and the Chawdamma (weaver's) temple, weaving and gold-smelting being the principal industries of the place even now.

Geologically, a considerable portion of the surrounding country, notably the western portion of the Raichur Doab, i.e. the land comprised between the Krishna and Tungabhadra, is represented by the peninsular gneissic complex in which the Dharwar series of rocks occur as definite bands and outlying patches. Rolling plains with rugged ridges mark the physiography. The water-courses of the area drain towards south and south-east into the Tungabhadra. Maski was mapped by Bruce Foote in 1876 as being included in the schistose band[2] known as the main Maski band of the Dharwar series. Later surveys, however, revealed it to be lying just outside the band.[3] Special interest attaches to this band since it contains *inter alia* numerous quartz reefs and veins or stringers which are often auriferous. The discovery of a number of old gold-workings scattered all over the Maski band clearly proves that the country had been systematically mined for gold in ancient days, and as many as thirteen old workings were located near Maski itself. Their occurrence is not without significance, as it affords a clue to the location of

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[1] *An. Rep. Arch. Dept. H.E.H. the Nizam's Dominions for the year 1936-37*, pl. VII b.

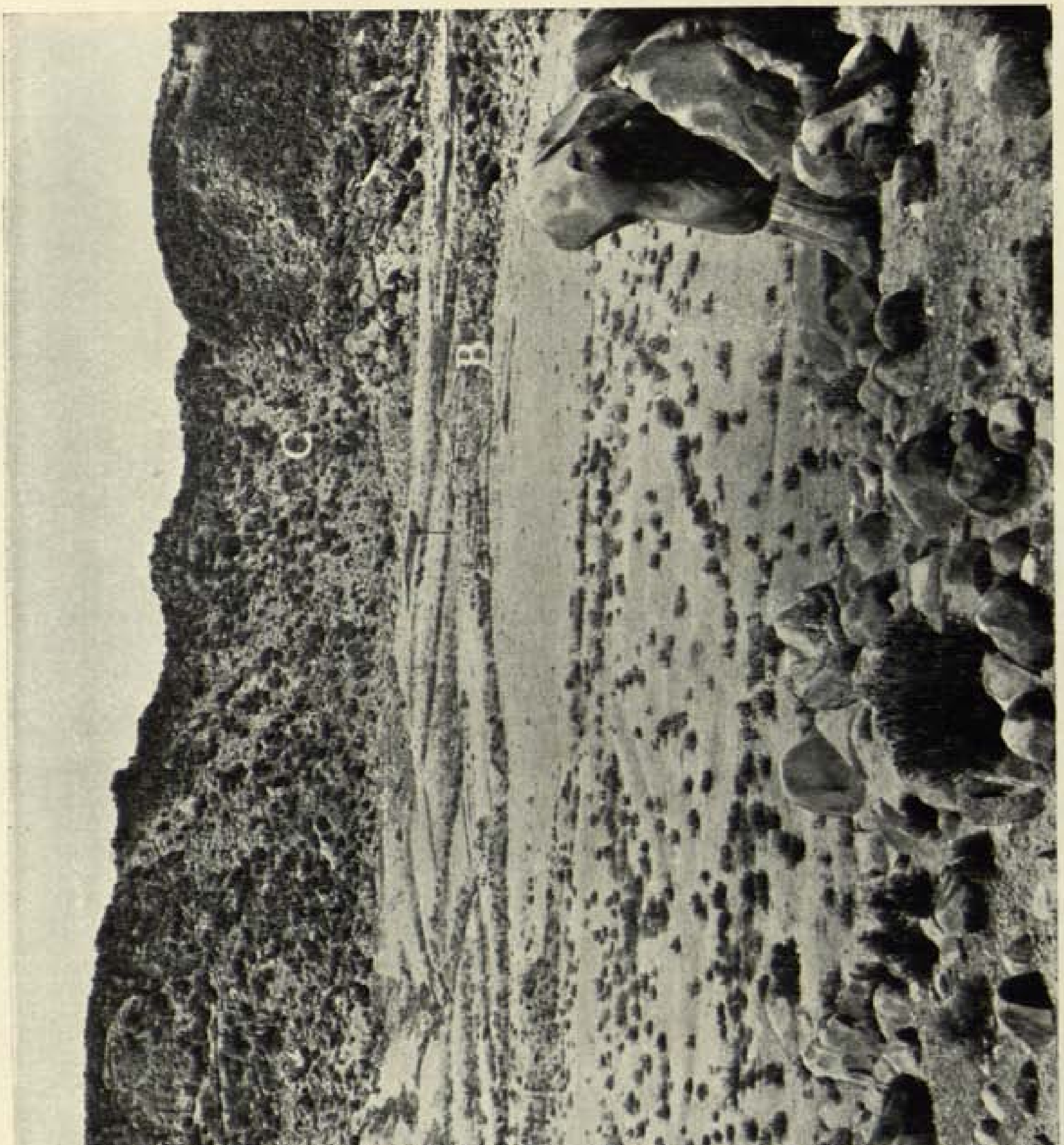
[2] R. Bruce Foote, 'The geological features of the south Mahratta country and adjacent districts', *Mem. Geol. Surv. Ind.*, XII, pt. 1 (Calcutta, 1876), pp. 41-42.

[3] Cf. 'Geology of the western portion of the Raichur Doab with special reference to the gold bearing rocks of the Dharwar bands', *Jour. Hyderabad Geol. Surv.*, II, pt. 1 (1934), pp. 1-75. and map 1.



Maski: general view of a part of the site, looking north. *See page 10*

 To face page 11



Maski: general view of the site, looking south-west; A, *Cutting MSK-10,* B, *Cutting MSK-9, and* C, *Cutting MSK-11. In the background can be seen the Durgada Gudda.* *See page 24*

Suvaṇṇagiri (Sanskrit *Suvarṇa-giri*, 'the gold mount'), the headquarters of Aśoka's viceroy in the south.[1]

To the south-west of Maski, at a distance of 54 miles, lies Kopbal, where another version of Aśoka's Minor Edict has been found.[2] Here, too, there are traces of ancient habitation. Another noteworthy feature of the District is the existence of a number of so-called ash- or cinder-mounds the contents of which have been identified as dried-up cow-dung (p. 13). Besides, the District contains many other 'prehistoric' sites surveyed by the Archaeological Department of the former Hyderabad State.[3] Of these, Benakal and Kallur are particularly important, the former for the rock-paintings and dolmens with port-holes[4] and the latter for the antennae swords of copper resembling those from Fatehgarh in Uttar Pradesh.[5] Petroglyphs or rock-bruisings of as yet indeterminate age have also been observed on the cyclopean boulders at some of these sites, notably Bellamrayan Gudda, Chick Hesrur and Maski.[6]

3. CULTURE-SEQUENCE AND MAIN CHARACTERISTICS OF DIFFERENT PERIODS (pls. V-VII)

Four Cuttings, labelled MSK-9 to MSK-12 (pp. 24-26), were laid out in different parts of the site. Of these, only one, viz. MSK-10, was complete and afforded evidence of three successive occupational Periods (numbered I to III from bottom upwards), with a break between the first two (pls. VI and VII), and with a sprinkling of the remains of the Medieval Period at the top levels. MSK-9 revealed that the area, after a regular occupation during Period I, had been used as a burial-ground in the next Period. MSK-11, a small cutting on the saddle of a hill, proved to be much disturbed by a late pit. In MSK-12, on the other side of the hill, remains of the Medieval Period alone were met with. The overall culture-sequence revealed by the index-trench, MSK-10, was as follows:

Period I, the chalcolithic culture, extending to an average height of 3 ft. above the natural surface, with a distinct break in occupation at the end of the Period;

Period II, the megalithic culture, extending further up to a maximum height of 5 ft. 6 in., in the uppermost foot of which there was an overlap with the following Period; and

Period III, the early historical culture, extending to the surface, with a further height of nearly 2 ft. including the overlapped deposit.

The Medieval Period, only represented in MSK-12, covered a height of 4 to 4½ ft. from the natural surface to the present ground-level, revealed a homogeneous occupation.

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[1] E. Hultzsch, *Inscriptions of Aśoka*, Corpus Inscriptionum Indicarum, I (Oxford, 1925), p. 175.

[2] R. L. Turner, *The Gavīmaṭh and Pālkīguṇḍu Inscriptions of Aśoka*, Hyderabad Arch. Series, no. 10 (Hyderabad, 1932).

[3] Khwaja Mohammad Ahmed, 'Note on the excavation and survey of prehistoric sites in the Raichur District of Hyderabad', *An. Rep. Arch. Dept. H.E.H. the Nizam's Dominions for the year 1935-36*, p. 28.

[4] *Ibid.*, p. 30.

[5] *An. Rep. Arch. Dept. H.E.H. the Nizam's Dominions for the year 1938-39* (Calcutta, 1942), pp. 23-27 and 31-32 and pl. V.

[6] L. Munn, 'Prehistoric and protohistoric finds of the Raichur and Shorapur Districts of H.E.H. the Nizam's State', *Man in India*, XV, no. 4 (1935).

The main characteristics of each Period are outlined below.

A. Period I

The cultural equipment of Period I was chalcolithic in nature, as evidenced by the occurrence throughout of microliths (pls. XXIII-XXV A) along with a meagre supply of copper. The material employed for the manufacture of the microliths,[1] which formed the most distinguishable industry of the Period, included chert, being the normal medium, agate, carnelian and opal. Amongst the types, implements showing no secondary work, viz. asymmetrical (fortuitous) flakes and parallel-sided blades, constituted the majority, being 78·5 per cent of the total yield, including cores. Other forms, occurring in much smaller numbers, comprised backed and serrated blades, lunates, trapezes, scrapers, worked points and burins (?). The whole complex was evidently dominated by a blade-industry, essentially without any retouching. The secondary work, wherever present, was always of a steep blunting nature except perhaps in the case of the discoid scraper and a few of the bimarginally-worked points which showed flattish trimmings. The technique employed in the fabrication of these tools, viz. hammer-technique, often combined with controlled flaking, reveals that their authors were skilful manipulators of the raw material. It is noteworthy that as many as ten hammer-stones showing flattened, occasionally battered, surfaces were recovered (pl. XXVI, *1-3*).

No polished stone axe was recovered from the stratified deposits of this Period. The four illustrated specimens (pl. XXV B), collected from the surface, can, however, be assigned to this Period because of the undoubted association of polished stone axe industry with microliths both at Brahmagiri and Sanganakallu.[2]

The restricted presence of copper, represented by a rod of indeterminate use from a mid-level of the Period (fig. 34, *1*) amongst an all-purpose use of stone clearly indicates the slow infiltration of the metal in an essentially neolithic culture. Iron did not occur in this Period.

Amongst the other small finds, beads were outstanding. They were variously of amethyst, carnelian, agate, chalcedony, coral, shell, glass and paste. Of these, shell and paste accounted for five beads each, glass and carnelian four each, coral two and other materials one each. An exclusive shape in paste, viz. concave-sided square (star-shaped) tabular, decorated with four incised circles on each side, deserves special mention (pl. XXVII, *31*). The terracotta objects, viz. pottery discs, both pierced and unpierced, were by no means distinctive (pl. XXIX A, *9*).

The pottery, which was mostly plain, revealed two main industries: (a) dull grey ware and (b) pinkish buff ware. Although essentially coeval with the former, the latter showed a greater frequency at the lower levels. A larger portion of the pottery was wheel-made, although instances of completely or partially hand-made vessels were not altogether wanting. The fabric, as a rule, was distinctly coarse, the paste having been prepared out of a micaceous clay obviously derived from decomposed shale or granite containing large particles of grit. The pots, restricted to a few generalized and unvarying shapes, were normally treated with a slip and were occasionally burnished. Although some of the types were common to both the industries indicating an integral culture, the globular vase with a flared rim (fig. 12, *22*) and the trough with a splayed out

[1] For definition, see below, p. 89n.
[2] B. Subbarao, *Stone Age Cultures of Bellary* (Poona, 1948).

or everted rim (fig. 10, *1*) were respectively typical of the two industries. A few sherds of dull grey ware also bore incised decorations (pl. XX A). Besides, a painted ware, represented by over two dozen sherds, was also in evidence during the Period, though it was mainly confined to the lower levels. The designs, of linear patterns, were executed in black or chocolate over a red-slipped surface. The ware had a thin section and a coarse fabric, sometimes containing large proportions of mica (fig. 9; pl. XIX).

The animal-remains revealed the existence of the fresh-water mussel amongst invertebrates and the common rat, short-horned humpless cattle, buffalo, sheep and goat amongst the vertebrates. Of the latter division, the larger number related to the short-horned cattle[1] and the sheep, of which obviously bigger herds had been maintained.[2] The domestication of these animals demonstrates a pastoral economy of the settlers tending towards food-growing. This is confirmed by Zeuner's identification of the cinder from the mounds at Kupgal and Kuditini as accumulated heaps of cow-dung (above p. 11).[3] This identification is further supported by the existence of 'big bones of cattle' in the ash-mounds between Gaudur and Machnur near Lingsugur.[4] That the inhabitants were fond of hunting too seems to be indicated by the occurrence of spherical or spheroid stone balls (pl. XXVI, *5* and *7*), which may have been sling-stones or bolas employed as missiles for killing fast-moving game.

No definitive evidence of house-plans and building material was revealed. The occurrence of post-holes and rammed-earth flooring in various levels of the Period suggests that the structures of the settlers were made of perishable material like timber.

The soil-samples from the strata relating to the Period did not yield any determinable pollen-grains and tracheids to reconstruct the contemporary climatic conditions of the area.

B. Period II

The outstanding characteristics of Period II were the sudden emergence of the megalith-building people and the introduction of iron. These combined traits provide the label for the Period, viz. the Iron Age megalithic culture. The megalithic people had drifted away from the use of stone for weapons and tools. The notable feature of the people was, however, the method of burial. No fewer than five classes of burials were encountered during the present excavation. Whereas two of them, B(iii), urn-burial (pl. XIV B), and B(v), pit-circle (pls. XIII and XIV A), save for the differences in details, had been elsewhere recorded earlier, the remaining three, B(i), B(ii) and B(iv) (pls. VIII-XII), were noticed for the first time. Besides the usual funerary deposits in the shape of pottery and iron objects, burials of classes B(i) and B(iv) contained on the pit-floor

[1] F. R. Allchin, in his excavation at Piklihal in the same District, found a terracotta figurine representing a long-horned variety of cattle. Cf. B. Subbarao, *The Personality of India* (M. S. University Archaeology Series, no. 3, Baroda, 1956), p. 36.

[2] This is contrary to the assertion of Christoph von Fürer Haimendorf that the neolithic settlers kept 'pigs and fowls but lacked domesticated cattle', *Indo-Asian Culture*, II, no. 3 (Jan. 1954), pp. 238-47.

[3] Subbarao, *op. cit.* (1956), quoting information from Zeuner. Bruce Foote also suggested a huge conflagration of dried cowdung to explain the origin of the mounds, *An. Rep. Arch. Dept. H.E.H. the Nizam's Dominions for the year 1927-28*, p. 29.

[4] *An. Rep. Arch. Dept. H.E.H. the Nizam's Dominions for the year 1927-28*, p. 27.

extended articulated human skeletons.[1] Class B(ii) was distinguished from B(i) in having partial skeletal remains. Again, classes B(i), B(ii) and B(iii) had no lithic appendage on the surface in the shape of a circle of boulders or a low cairn but consisted primarily of unlined pits dug to varying depths. Classes B(i) and B(iv) were met with in habitational deposits themselves. Two menhirs (pls. XV and XVI), forming part of rough alignments, were also excavated but were found to be unassociated with any funerary deposits. These, therefore, are the new facets of the megalithic culture at Maski.

Iron, being a necessary adjunct of this culture, was well-represented in both the burials and the contemporary habitational deposits. The objects included lances, tanged arrow-heads, ferrules and dagger-blades (figs. 35-38). Of copper, only four objects were recovered, suggesting a partial adoption of this metal for daily use. A fragmentary bangle (fig. 34, *3*) alone is worth mentioning.

Microliths had not been in use in the Period, as the recovered examples were mostly fragmentary and indicated only survivals. The terracotta objects were also not very distinctive and comprised such common objects as a gamesman, a marble, discs, etc. (pl. XXIX A, *2*, *14* and *10*). The inhabitants had not perhaps attained skill in this art. Beads (pl. XXVII) and bangles (pl. XXIX B) constituted the personal ornaments of the people. The latter, of shell and glass, were plain and artless and were also poorly represented. The occurrence of glass bangles in the strata prior to the Christian era, however, is significant. Amongst beads, a gold bead, a collared horn bead and an etched carnelian bead (pl. XXVII, *21*, *34* and *8*) were noteworthy. The latter being widely distributed also affords a dating link.

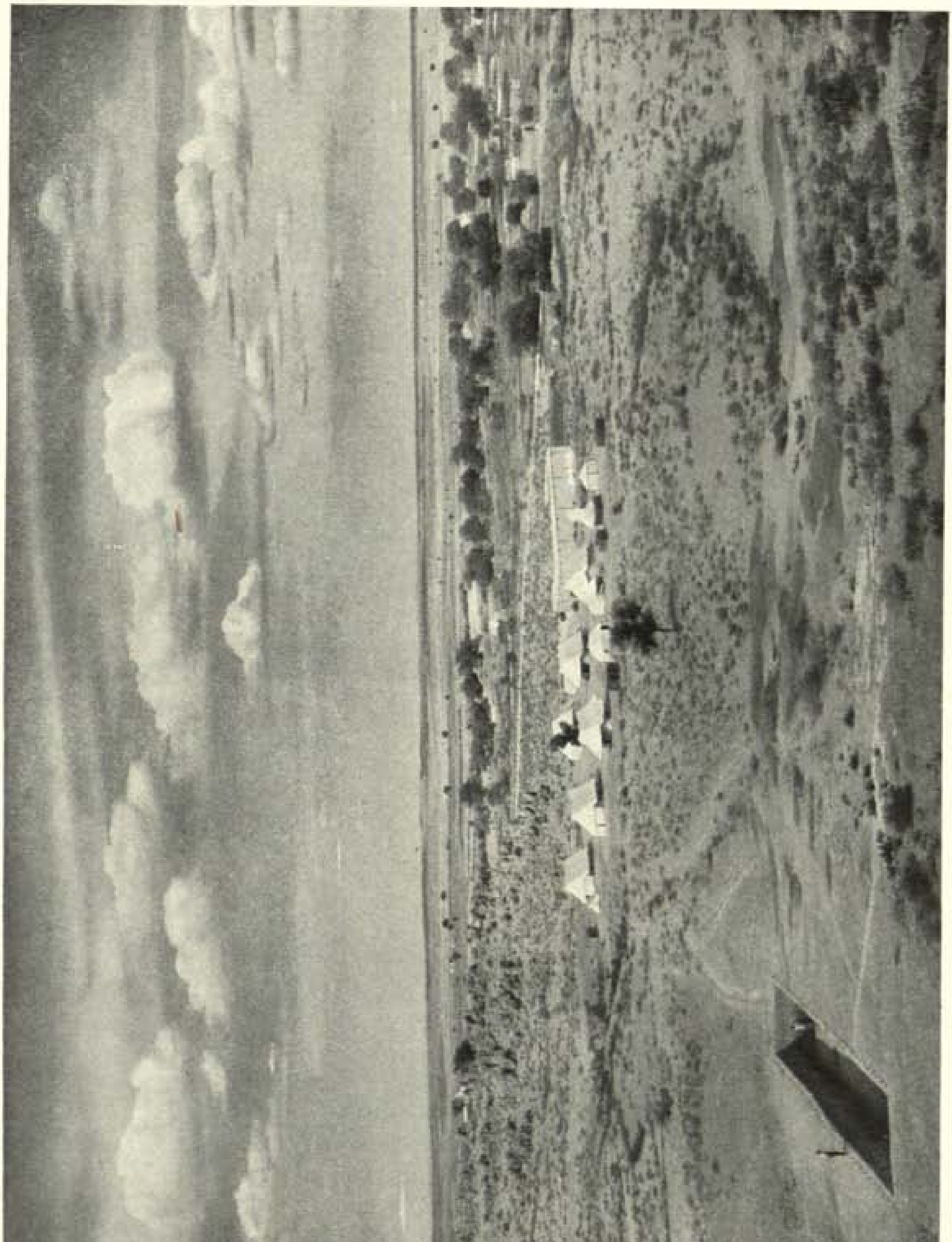
The notable feature of the pottery was the sudden emergence of the megalithic ware with a fabric finer and section thinner than in the preceding Period, polished, occasionally shining, and unmistakably turned on the wheel. In its patent fabric it was black inside and black-and-red outside, the black confined to the upper part of the exterior of the vessel, the result of inverted firing. This pottery, with shapes radically different from those of Period I, also implied a different tradition of kiln-firing and advancement in the method of preparing the paste. On the basis of the technique of manufacture alone, it is tempting to compare and at least to relate genetically this megalithic Black-and-red Ware with the ware produced by the same technique at the central and western Indian sites with chalcolithic and Iron Age associations,[2] but in the present state of our knowledge the comparison is not fully valid (below, pp. 64-65). The other ceramic industries of the Period were the all-black ware and the red-slipped ware.

The animal-remains from the Period indicated the domestication of the cattle of the short-horned humpless variety and the sheep. From the number of the bones, however, it is evident that not large stocks were raised. The inhabitants seem to have practised settled agricultural economy with a bias for urban life. Hunting as a part-occupation is suggested by the occurrence of stone balls, presumably used for the same purpose as in the preceding Period (above, p. 13). Another stone object throwing light on the economy of the people was a stone pestle (pl. XXVI, *10*).

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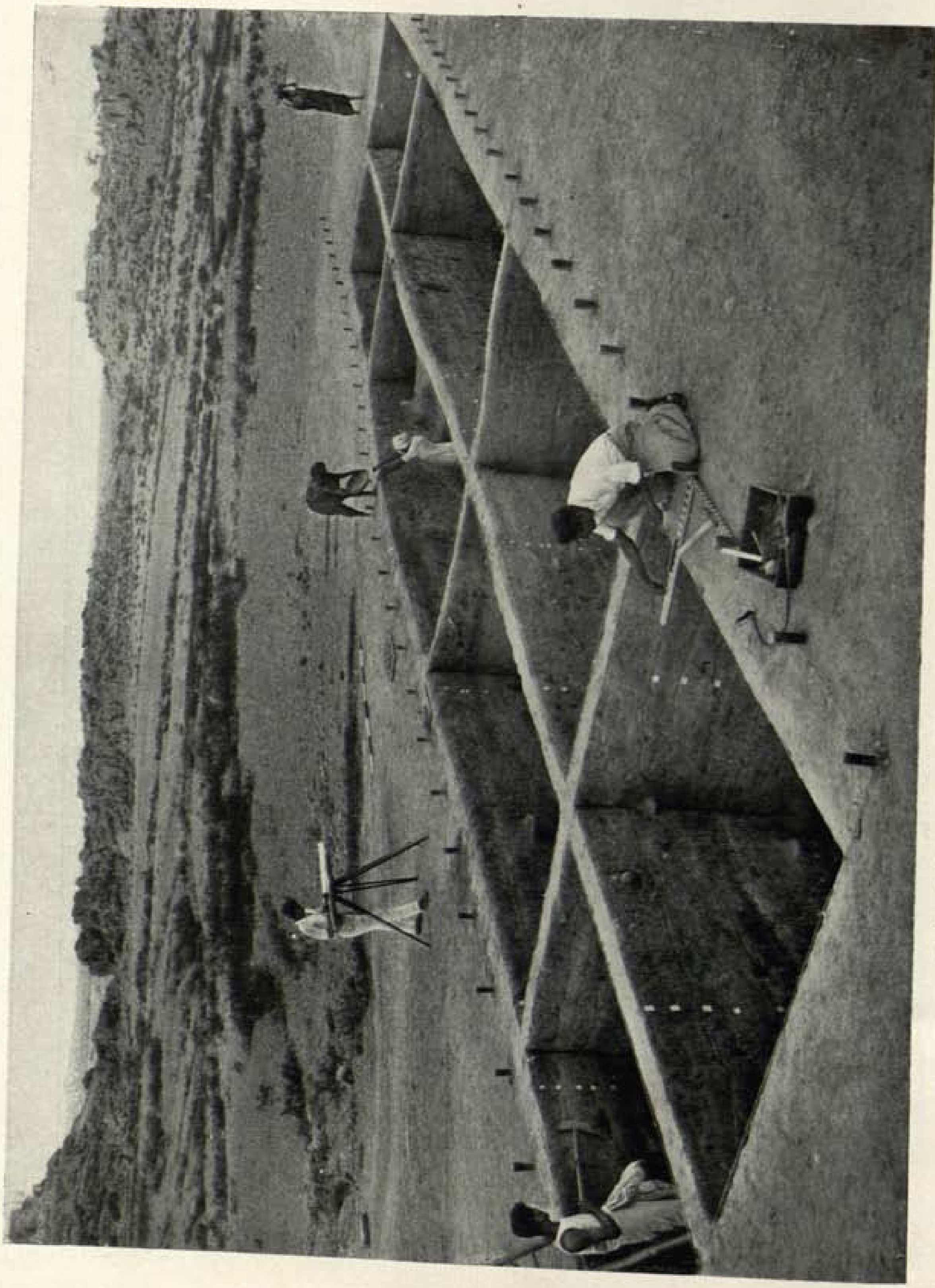
[1] Excepting Chandravalli, where one of the cists produced a human skelton 'with the limbs bent double over the body', 'Excavation at Chandravalli (Mysore State)', *Suppl. An. Rep. Mysore Arch. Dept. for the year 1929* (Bangalore, 1931), p. 16 and pls. IX and X, and Perambair, where there was 'a human skeleton in a cross-legged sitting posture with the hands resting on the knee', *An. Rep. Arch., Surv. Ind., 1908-9* (Calcutta, 1912), p. 93, complete and extended skeletons have not so far been recovered from any of the excavated megalithic tombs.

[2] Subbarao, *op. cit.* (1956), pp. 74-76.



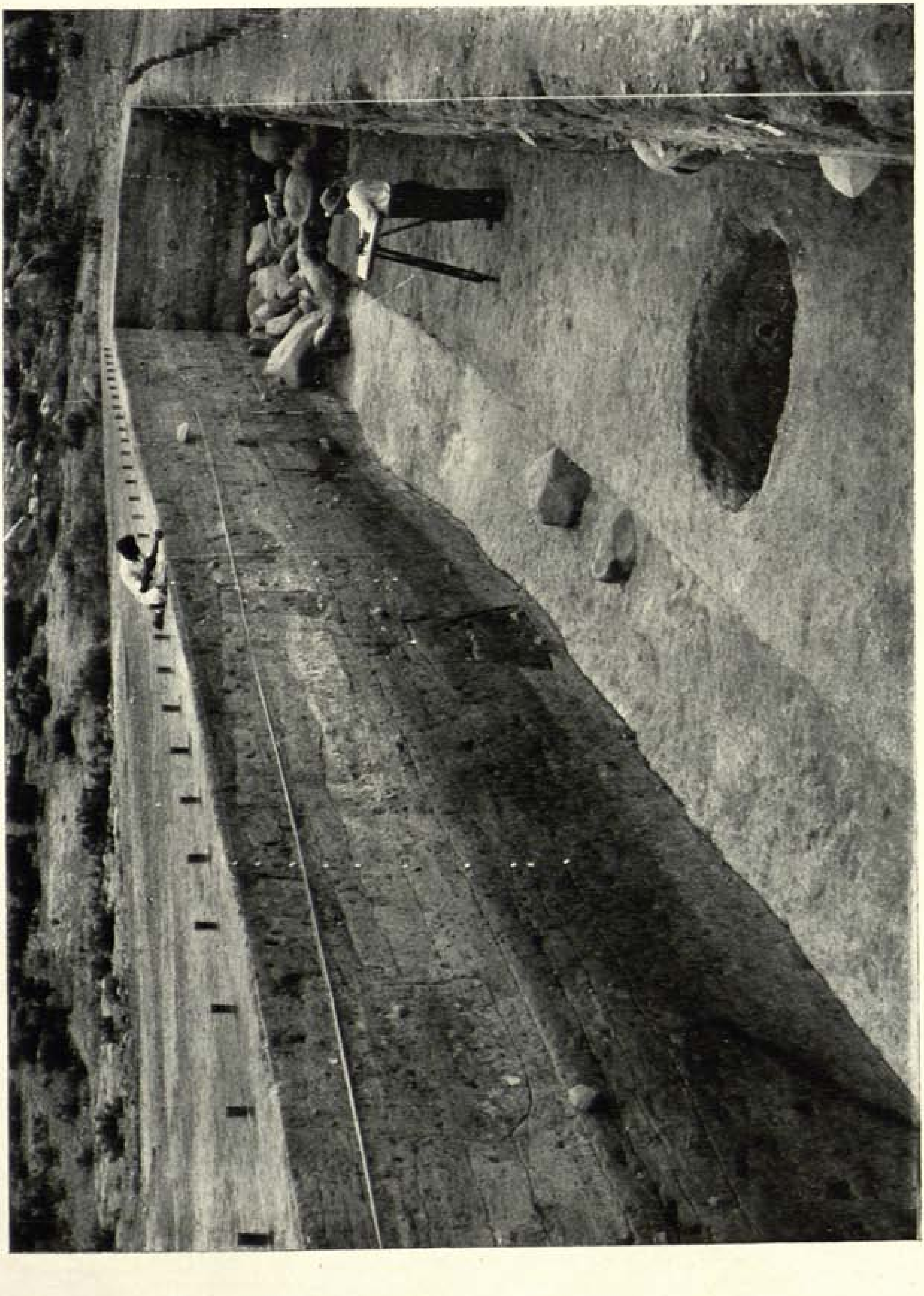
Maski: general view of the site, looking north-east; Cutting MSK-10 in foreground; the excavation camp and the present village in middle distance. *See pages 25-26*

To face plate V

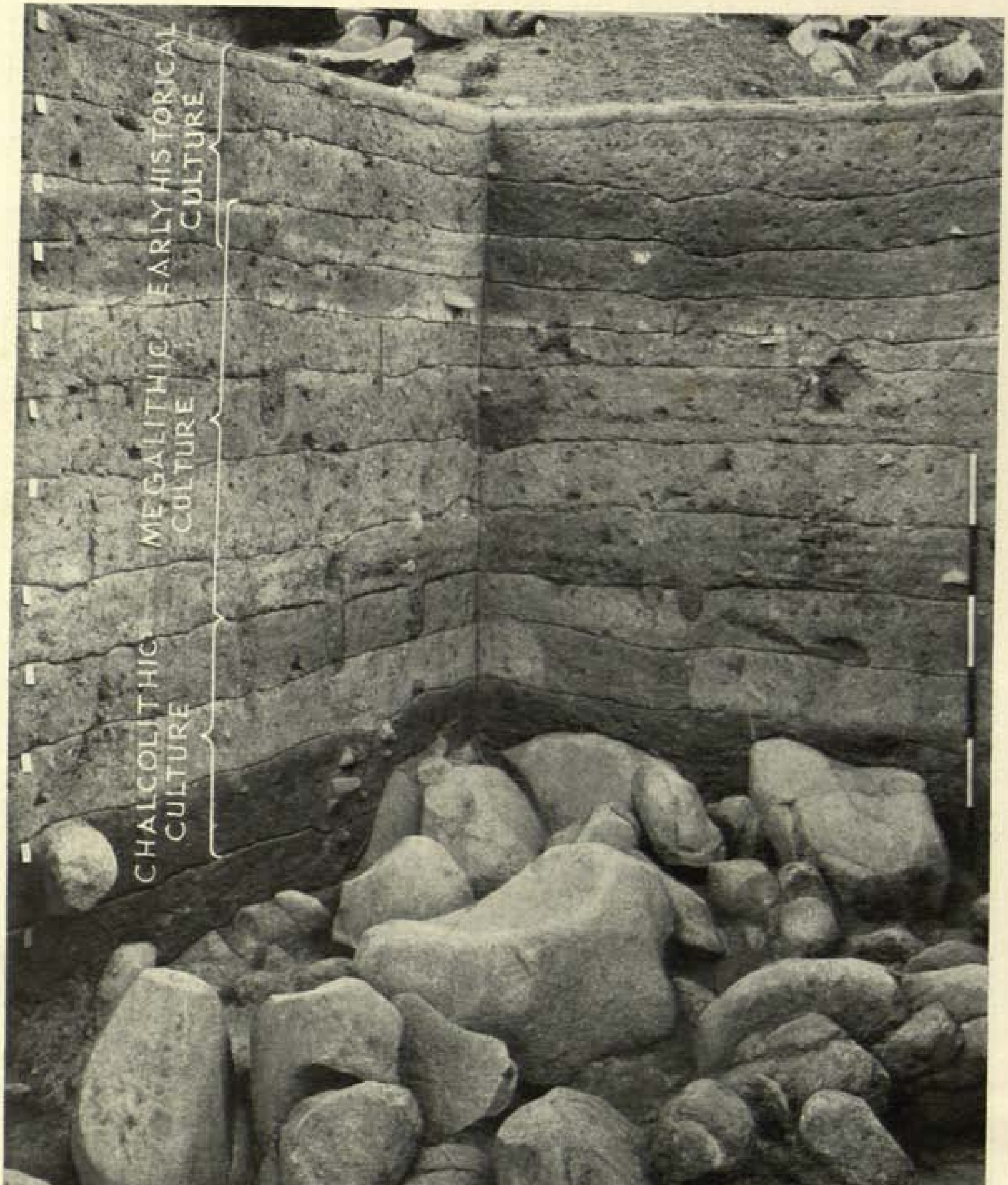


Cutting MSK-10 during excavation, looking north. *See pages 25-26*

To face plate IV



Cutting MSK-10 after excavation, looking south. *See pages 25-26*



Cutting MSK-10 showing incidence of cultures. *See page 11*

Apart from post-holes, no traces of any structure were found in the excavated trenches. It follows, therefore, that the inhabitants continued using timber for buildings.

The soil-samples from this period contained six varieties of pollen-grain and tracheids and suggest the occurrence in the region of pines, which, in turn, indicate a temperate climate.

C. Period III

The distinctive features of Period III included the introduction of coinage and the use of a sophisticated ceramic, the Russet-coated Painted Ware, inaptly labelled hitherto as the Āndhra painted ware. The chief attribute of this pottery was the rich repertoire of linear patterns, rectilinear or criss-cross, executed in white with lime or kaolin paste under a russet-coloured ochreous wash which shows crazing due to salt-glazing. External contacts in the Period were indicated by the occasional occurrence of rim-fragments of the 'beaked dish', on the base of which the rouletted decoration is normally applied. The site, however, is reported to have also yielded previously sherds actually bearing the rouletted pattern. The other wares current during this Period were: (a) dull red ware of medium fabric, occasionally treated with a red or chocolate slip and (b) darkish grey ware of related fabric. In the former the now-famous sprinkler and the lid having flanged waist (fig. 26, *17* and *7*) were characteristic. Some of the sherds occurring sporadically displayed a black-and-red effect simulating that of the megalithic ware. Quite a few of such sherds, contrary to the normal megalithic manufacture, showed black towards the lower portion and red towards the upper portion of the exterior of the vessel, indicating a reversal of the firing technique obtaining in Period II.[1] Besides, the distinctive megalithic shine was absent from these sherds.

Notable amongst the small finds were beads and bangles. The former were represented in various silicon minerals and in coral, shell, glass, paste and terracotta. Of particular interest, however, were the etched beads of carnelian and agate (pl. XXVII, *9* and *2*). The bangles, though also represented in copper (fig. 34, *2*), were principally of shell and glass (pl. XXIX B). The carved decoration on shell bangles speaks of a high quality of workmanship. Special interest, however, attaches to the fact that amongst both the beads and the bangles shell accounted for the majority, indicating the popularity of the shell-industry.

The two terracotta figurines, one each human and animal (pl. XXVIII B), do not attest to any skilful or impressive execution. Whereas the animal-figurine is almost crudely modelled, the human figurine, though possessing proportion combined with grace, does not match with the corresponding figurines obtaining in northern India from sites of a comparable date. Amongst other terracotta objects, a flesh-rubber and two spools (pl. XXIX A, *1*, *4* and *5*) are worth mentioning. The iron objects from this Period were not very distinctive except for a couple of dagger- or knife-blades (fig. 37, *23*).

Animal-remains of buffalo and sheep were obtained from this Period, but their number was much smaller than that from the preceding Periods. This is not particularly significant, since by this time the entire economy of the communities had changed. A

[1] Such pots were evidently placed one above the other in the kiln and not in an inverted position as in the case of the megalithic Black-and-red Ware, with the result that, due to reducing conditions, the portion of the base of a vessel fitting into the rim of the lower one would remain black along with a substantial portion of the inside. The upper portion of the outside, being oxidized, would turn red.

system of government, with coinage and external contacts, must have largely contributed towards such a transition. Although no regular burnt-brick structures were met with, the occurrence of a few brick-bats of the dimensions of ?×9×3 in. did indicate their use.

The soil-samples contained fungal spores and tracheids of the types of the preceding Period. No change in the climatic conditions in this Period is therefore indicated.

D. The Medieval Period

The distinguishing ceramic industry of the Medieval Period was a grey pottery characterized by a burnished surface and a medium, occasionally coarse, fabric. The relieving feature of this otherwise monotonous ware was the decoration consisting primarily of multiple grooves bordered by a stamped and incised patterns mostly on the shoulder (pl. XXII). Dating evidence was provided by coins belonging to the fourteenth century. Also typical of this Period were polychrome stratified glass bangles (pl. XXIX B, *14-16*). Though none of them was recovered from the true deposits relating to the Period in Cutting MSK-12, their occurrence in the latest levels in Cutting MSK-10, which also yielded a coin (pl. XXX, 3) of Sultān Qutbu'd-Dīn Mubārak Shāh Khaljī (A.D. 1316-20), would seem to confirm their chronological position. Beads (pl. XXVII), sixty per cent of which were of glass, constituted another notable industry of the Period. Glass, notably polychrome, and grey pottery, therefore, formed the characteristic industries of this Period. Amongst other finds a copper rattle (fig. 34, *7*) deserves mention.

4. CHRONOLOGY

Let it be stated at the outset that nothing convincingly datable was obtained in the present excavation to necessitate a change in the chronological framework for the first three cultures already established at Brahmagiri. Nevertheless, it seems desirable to draw attention to the new evidence notably relating to the chalcolithic and megalithic cultures brought forth during the decade following the Brahmagiri excavation. Some of it has a bearing on the peninsular megalithic culture and may call for a revision of the lower limit proposed for it at Brahmagiri. Before, however, any such attempt is made, further evidence from a few more sites should be awaited, for the Brahmagiri dating has not been altogether superseded by any recent evidence. The evidence for the chalcolithic culture adduced below (p. 20) is mainly a corroborative one; based on contacts between western and peninsular India, it is useful for chronological correlation.

The evidence of coin-finds and inscriptions is helpful in dating the Medieval Period. The coin actually recovered from the strata relating to this Period in Cutting MSK-12 is a single-die legendless one (pl. XXX, *6*) and cannot, therefore, be precisely dated, although its fabric and association leave no doubt of its Muslim origin. Of the two coins collected from the surface (pl. XXX, *4* and *5*), no. 5 is ascribed to Ghiyāthu'd-Dīn Tughluq Shāh, A.H. 720-25 (A.D. 1320-25). Another datable coin of this Period was that of Sultān Qutbu'd-Dīn Mubārak Shāh Khaljī, A.H. 716-20 (A.D. 1316-20) (pl. XXX, *3*). This coin was, however, found in a pit cut into the latest layers of Period III in Cutting MSK-10. From its stratigraphical position it was clearly out of context and had nothing to do with Period III.

To turn to the epigraphical evidence:[1] Maski, identified with the ancient battle-field of Musaṅgi, where the Chāḷukyan Jayasiṁha II was defeated by Rājendra Chola I,[2] is referred to as *Piriya Mosaṅgi* or *rājadhānī Piriya Mosaṅgi*, meaning the capital-town or royal residence of the bigger Mosaṅgi, in one of the inscriptions belonging to the reign of Jayasiṁha Jagadekamalla I,[3] (A.D. 1015-42) of the later line of the Western Chāḷukyas with their headquarters at Kalyāṇa. This shows that Maski by that time was the principal seat of an administrative unit. That it continued to flourish even during the Vijayanagara period is attested to by an inscription of Sadāśivarāya,[4] dated A.D. 1547, referring to Mosage-śiṁha, i.e. the province or district of Mosage, identified with Maski.

Confirmatory evidence is also provided by the characteristic ceramic industry of the Period, viz. the burnished grey ware, which was also found abundantly at Hampi, the ruined capital of the Vijayanagara empire (below, p. 83).

Śātavāhana coins, occurring in association with Roman denarii, and the Rouletted Ware provided the main dating evidence for the so-called Āndhra culture at Brahmagiri and Chandravalli. Both of them imparted a measure of chronological precision to a widely-distributed ceramic characterized by linear painted designs executed in white lime or kaolin paste under a russet-coloured wash. By association, therefore, the range of this pottery, labelled here as the Russet-coated Painted Ware, was assigned to about the middle of the first century to the third century A.D.

At Maski the lowest stratum of Period III yielding sherds of this Ware did not contain any characteristic 'beaked dishes' in patent fabric with or without the rouletted pattern. Ignoring the sherds actually bearing the rouletted pattern, previously reported from this site, in view of the uncertainty of their exact horizon, during the present excavation rim-fragments of the beaked dish were found only in the middle and late levels of the Period, thus indicating a priority of the Russet-coated Painted Ware to the beaked dish. It is reasonable to infer that the beginning of this Period, marked by the appearance of the Painted Ware, cannot be later than the middle of the first century A.D. if not a little earlier. The occupation was essentially a slender one and might have continued, as at Brahmagiri, till about the third century A.D. The only coin recovered from the true strata pertaining to this Period (pl. XXX, *1*) is unfortunately undatable.

A reasonably datable find from Period II comprised an etched carnelian bead (pl. XXVII, *8*), which has been ascribed to the first century A.D. (below, p. 104). The date is fully consistent with its stratigraphical position, i.e. a late level of the Period. Period II, represented by the megalithic culture, therefore, came to a close towards the first half of the first century A.D. Corroborative evidence for this *terminus ante quem* of the megalithic culture is also provided by the 1953-excavation at Sengamedu in South Arcot District, where the 'megalithic' Black-and-red Ware (without actual megaliths) was found under and overlapping the Rouletted Ware of the first century A.D.[5] On the analogy of Brahmagiri, a 4-5 ft. deposit of regular occupational strata, accumulated under identical weathering conditions, would certainly take us more than two centuries backwards for the beginning of this Period. The evidence already documented in support

[1] I am obliged to Shri P. B. Desai, Assistant Superintendent for Epigraphy in the Department, for the relevant information.

[2] P. B. Desai, *Corpus of Inscriptions in the Kannada Districts of Hyderabad* (in the press).

[3] Hultzsch, *op. cit.*, p. xxvi.

[4] *Ibid.*

[5] N. R. Banerjee, 'The megalithic problem of Chingleput in the light of recent exploration', *Ancient India*, no. 12 (1956), p. 32.

of the Brahmagiri date[1] need not be recapitulated here. Only the new data afforded by recent work bearing on this problem are summarized below.

1. Many sites in central and western India, notably Maheswar, Nasik, Bahal, Nevasa, Nagda, Ujjain, Ahar, etc., have yielded a class of black-and-red ware allied to the megalithic technique but unassociated with actual megaliths. Excepting its restricted presence in chalcolithic assemblage (below, p. 64 n.) it has been obtained in sizable quantities from the strata both under and overlapping the securely-dated Northern Black Polished Ware in association with punch-marked coins and iron.[2] The chronological priority of this ware to its counterpart in the megalithic Peninsula is therefore apparent. The genetic relationship, if any, between the two classes of the ware still remains to be established by future work. In the meantime it may be stated that any such relationship would imply a migration of the iron-using communities practising megalithic burials from the north-west to south. Such a possibility was postulated by Wheeler while commenting upon the little-known Karachi group of megalithic cists with port-holes.[3] But so far no cogent links have been revealed between Karachi District and the Peninsula to support this hypothesis. The pit-burial at Bahal, East Khandesh District, provides an instance where black-and-red pottery was found in association with a painted jar and long blades but without iron[4] —a mysterious assemblage. Furthermore, the sudden emergence of the megalithic culture characterized by a lavish iron equipment in the Peninsula, its maturity suggesting the intrusion of a perfected tradition, remains an unsolved problem. The distribution of megaliths, as far as present-day knowledge goes, points to an impulse for movement from south or south-west to north and east. According to Gordon, iron was introduced into the south 'by the people who cannot well be other than Dravidians' between *circa* 700 and 400 B.C.[5] He is tempted to associate these people with the early traders from southern Arabia, thus favouring a coastal entry for the iron-using megalithic communities.[6]

2. Fürer-Haimendorf, while equating the megalith-builders of peninsular India with the Dravidians, argues that it was to them that the Aśokan edicts at Brahmagiri were addressed, considering it improbable that the inscription was 'put up amidst primitive folk living in a neolithic style of life'.[7] This seemingly speculative view is supported by another inferential evidence. Suvarṇagiri, the 'gold mount', has been alluded to as the headquarters of Aśoka's viceroyalty in the Deccan. The country around Maski is noted for numerous ancient gold-workings (above, p. 10) and justifies the epithet 'gold mount', implying thereby that during the time of Aśoka the area must have been systematically prospected for gold. Munn even went as far as to identify Maski with Suvarṇagiri.[8] Now the obvious question arises: who were these gold-explorers living within Aśoka's dominions? The method of mining as investigated by Munn, viz. by fire-setting and the employment of iron gouges and stone hammers for the extraction of the fractured gold-

[1] *Ancient India*, no. 4, *op. cit.*, p. 201 and p. 300, Appendix C.

[2] Subbarao, *op. cit.* (1956), pp. 45-56.

[3] *Ancient India*, no. 4, *op. cit.*, pp. 300-05, Appendix D.

[4] V. D. Krishnaswami in *Ancient India*, no. 9 (1953), p. 68.

[5] D. H. Gordon, 'The early use of metals in India and Pakistan', *Jour. Roy. Anthrop. Inst.*, LXXX (1950), pp. 65-67.

[6] This hypothesis, however, is not free of doubt, since it is not certain whether the monsoon-route to Malabar was known to Arab sailors before its discovery by Hippalus in the first century B.C.

[7] Fürer-Haimendorf, *op. cit.*

[8] *An. Rep. Arch. Dept. H.E.H. the Nizam's Dominions for the year 1927-28*, p. 26.

bearing quartz from the reef[1] presupposes slave labour. On circumstantial evidence Gordon infers, perhaps rightly too, that it was the megalithic people alone who had the resources and equipment for gold-mining in such appalling conditions.[2] This would imply that the megalithic culture was firmly established in this region during the reign of Aśoka (273-36 B.C.). Further, attention has been drawn[3] to the mention in the inscriptions of Aśoka of well-established principalities in the south, like the Cholas, Pāṇḍyas, etc., well-known branches of the Dravidian stock.

3. At Sengamedu in North Arcot District, Madras State, the 1953-excavation revealed an uninterrupted accumulation of 9 ft. yielding the megalithic Black-and-red Ware below a deposit in which this Ware was intermingled with the Rouletted Ware. Although no equation of the depth of occupational strata with the time taken for their accumulation is definitely valid, this 9-ft. deposit would assumably represent a duration approximating three centuries.[4] On the other hand, in view of the burnt-brick structures met with in these strata a much longer duration is equally unlikely.

4. At the famous site of Amaravati in Guntur District, Andhra Pradesh, one of the smaller *stūpas* was found to overlie megalithic urn-burials.[5] The foundations of this *stūpa* have been chronologically equated with the earlier remains of the Mahā-chaitya ascribable to the early part of the second century B.C.[6] The megalithic culture at Amaravati, as represented by these urn-burials, therefore, demonstrably preceded the *stūpa*-building activity, which started in the wake of Buddhist proselytizing. The *stūpa*-area has recently yielded the Northern Black Polished Ware.[7] The neighbouring fortified township of ancient Dhanakaṭaka,[8] has also been reported to have yielded the Rouletted Ware and the Russet-coated Painted Ware,[9] pointing perhaps to its glorious period with a maritime activity under the later Śātavāhanas. Further explorations have produced punch-marked coins, not to speak of the megalithic Black-and-red Ware.[10] Whereas the punch-marked coins are less securely dated, ranging that they do between *circa* fifth and second centuries B.C., the occurrence of the N.B.P. Ware in this peripheral region of its distribution, as at Nasik and Maheswar in western India and Tripurī in central India,[11] is unlikely to be later than the third century B.C. If future excavation can indicate a contemporaneity at any stage between the three industries, the coincidence would become alluringly significant.

Of the above, the last two provide some objective evidence for an earlier dating of the megalithic culture in the southern Deccan than has been proposed for Brahmagiri. I would, however, plead for a little more patience until further evidence is forthcoming.

[1] Leonard Munn, 'Ancient gold-mining in southern India', *Transact. Mining Geol. Inst.*, 1935; also cf. Section B Economics, *Jour. Hyderabad Geol. Surv.*, II, pt. 1, *op. cit.*, pp. 77 ff.

[2] Gordon, *op. cit.*, p. 67.

[3] D. C. Sircar, 'The Dravidian problem', *Man in India*, 35, no. 1 (1955), pp. 33-34.

[4] Banerjee, *op. cit.*, p. 32.

[5] Alexander Rea, 'Excavations at Amaravati', *An. Rep. Arch. Surv. Ind., 1908-9* (1912), pp. 88-91, figs. 1 and 2.

[6] *Ibid.;* cf. Douglas Barrett, *Sculptures from Amaravati in the British Museum* (London, 1954), p. 19.

[7] *Indian Archaeology 1953-54—A Review* (New Delhi, 1954), p. 38.

[8] Original name of Amaravati, as found in two of its earliest inscriptions ascribable to *circa* 200 B.C.; cf. C. Sivaramamurti, *Amaravati Sculptures in the Madras Government Museum*, Bull. Madras Govt. Museum (Madras, 1942), p. 4.

[9] *Ancient India*, no. 4, *op. cit.*, p. 308, Appendix E.

[10] Author's own collection from the lower levels in the exposed sections at Dharanikota (ancient Dhanakaṭaka).

[11] M. G. Dikshit, *Tripuri—1952* (Nagpur, 1955), p. 18.

As a partial recognition of the existence of this culture in south India even in the pre-Aśokan period, it has already been admitted that the 'Megalith-folk were already in fact spreading northwards about 300 B.C.'[1] For a full appraisal of the problem we should bear in mind the magnitude of this culture both in time and space and the period it might have taken to spread from region to region resulting in local variations.

The present excavation did not show any overlap between the megalithic and chalcolithic cultures, thus clearly proving the intrusive nature of the former. Since, however, an overlap, but significantly without any cultural transition, between the two was recognized both at Brahmagiri and Sanganakallu, a gap longer than one hundred years between the end of Period I and the beginning of Period II is unlikely at Maski. Tentatively, the end of Period I of Maski may be assigned to *circa* 400 B.C., with the necessary reservation that our knowledge regarding the beginning of the megalithic culture in this region is as yet incomplete. The thickness of occupational deposit represented by this Period measures between 3 and 3½ ft. To compute a time-scale against this deposit is anyone's guess, but considering the general context of the culture, the beginning of Period I would be placed somewhere in the earlier half of the first millennium B.C.

Recent excavations at Jorwe, Nasik and Nevasa have yielded some typical objects of the Brahmagiri Stone Axe culture from strata relating to the chalcolithic or Early Bronze Age ascribable to *circa* 1400-500 B.C. These objects include: (a) burial-urns of distinctive mottled grey fabric,[2] and (b) polished stone axes with pointed butt.[3] Besides, hammer-stones and a platter are also parallelled. A useful correlation is thus provided between the chalcolithic cultures of the two regions.

To sum up, the following dates are proposed for the first three Periods at Maski:—

PERIOD I, THE CHALCOLITHIC CULTURE: early first millennium B.C. to *circa* 400 B.C.

PERIOD II, THE MEGALITHIC CULTURE: *circa* 200 B.C. to the middle of the first century A.D., with a reasonble margin of a century on the earlier side.

PERIOD III, THE EARLY HISTORICAL CULTURE: middle of the first century A.D. to *circa* third century A.D.

THE MEDIEVAL PERIOD, *circa* A.D. 1000 to 1600.

5. OBSERVATIONS ON THE CHALCOLITHIC CULTURE (figs. 3 and 4)

For a full comprehension of the chalcolithic culture, it will not be out of place to review the available evidence against the background of which the Maski results may be assessed.

As early as 1935 an outpost of the Harappa culture was located at Rangpur in Kathiawar.[4] Subsequent field-work notably during the last decade not only extended the zone of the Harappa culture in Kathiawar[5] but also brought to light another wide-spread culture,[6] chalcolithic in nature and apparently posterior to the Harappa. In the southern Deccan this culture has been identified at Brahmagiri, Sanganakallu, Kallur and

[1] *Ancient India*, no. 4, *op. cit.*, p. 201.

[2] Sankalia and Deo, *op. cit.*, p. 28 and fig. 3, *a*.

[3] *Indian Archaeology 1954-55—A Review*, p. 5 and pl. IV A; *1955-56*, p. 8 and pl. XIV.

[4] *An. Rep. Arch. Surv. Ind., 1934-35* (Delhi, 1937), pp. 34-38.

[5] *Indian Archaeology 1954-55—A Review*, pp. 12 and 59; *1955-56*, pp. 6 and 70.

[6] The diverse aspects of this culture have also been analysed by A. Ghosh in *Ancient India*, no. 12 (1956), pp. 1 and 2.

Maski and in central India and northern Deccan notably at Tripuri, Nagda, Maheswar, Navda Toli, Prakash, Bahal, Nevasa, Jorwe and Nasik. In each region, despite local variations, the culture is broadly homogeneous in its assemblage: in the former it is dominated by a neolithic industry characterized by polished stone axes, while in the latter it is distinguished by a profusion of painted pottery, parallel-sided blades being common to both. Intercourse between the two regions is attested to by the employment of a common method of the flaking of the microlithic implements, the occurrence of polished stone axes and burials-urns at Nevasa and Jorwe and painted pottery at Maski, Brahmagiri, etc. Although this painted pottery is wholly different in fabric, not to speak of form, from its counterpart in central India and northern Deccan and also seems to have been locally manufactured (below, pp. 38-40), its comparative rarity and the absence of any other painted pottery tradition of chalcolithic assemblage in the southern Deccan betrays an inspiration or dispersal from the northern regions. A two-way traffic between the two regions is thus clearly discernible.

Although evidence regarding the authorship of this far-flung culture is not yet forthcoming, some of its elements may seem to be common with the Harappa culture. These include: (a) the tradition of painted pottery; (b) copper-bronze; and (c) ribbon-flakes. The low-grade bronze (1·78 per cent tin, and 98·4 per cent copper) celts recovered from Jorwe[1] are closely parallelled at Mohenjo-daro. Not much significance, may, however, be attached to this resemblance, as the type of the celt is too simple and fairly widespread.[2] The only notable correspondence between the pottery-forms of the two cultures is at present confined to dishes-on-stand which, besides the Harappan sites, occur at Maheswar, Prakash and in the post-Harappan levels at Rangpur. The similarity, however, is only of a general nature and does not extend to details of shapes and painted designs. Attention may also be drawn to the double-pot obtained from Jorwe (pl. XVIII A), which is analogous to a similar pot (pl. XVIII B) from Kot Diji, a Harappan site in Khairpur State of Sind,[3] though both are unstratified. These instances, though isolated in character, may perhaps vaguely point to a common root for these forms and serve to underline the links between the Harappa culture and the chalcolithic culture of central India and the Deccan. Recent work at Rangpur has brought to light a post-Harappan phase wherein some forms, including the pattern of painting, are closely similar to the chalcolithic painted pottery at Jorwe, Nasik, etc.[4]

These links assume significance in the light of the occurrence of cylinder-seals in the Peninsula. A cylinder-seal 'apparently of stone set in a gold handle' and bearing two lines of cuneiform inscriptions ascribed to *circa* 2000 B.C., now in the Nagpur Museum, may have come from somewhere in central India, though its exact find-spot is unknown.[5] A terracotta cylinder-seal engraved with a man driving an elephant was found on the

[1] Sankalia and Deo, *op. cit.* pp. 150 and 157-60, fig. 60, and pl. XXXIII.

[2] B. B. Lal, 'Further Copper Hoards from the Gangetic basin and a review of the problem', *Ancient India*, no. 7 (1951), p. 32.

[3] G.S. Ghurye, 'Account of an exploratory tour in certain parts of Sind in search of pre-historic culture', *Jour. Univ. Bombay*, Arts and Law, IV, no. 8, pt. 6 (May 1936), pp. 1 ff. and pl. IV. The pot is now displayed in the Prince of Wales Museum, Bombay, through whose courtesy it is illustrated here.

[4] *Indian Archaeology 1953-54—A Review*, p. 7 and *1954-55*, pp. 11-12; also M. G. Dikshit, 'Excavations at Rangpur: 1947', *Bull. Deccan College Res. Inst.*, XI, no. 1 (Dec. 1950), pp. 3 ff.

[5] M. A. Saboor, 'A note on the Babylonian seal in the Central Museum, Nagpur', *Jour. Asiatic Soc. Beng.*, X, no. 11, N. S. (1914), pp. 461-62; also B. B. Lal, 'Protohistoric investigations', *Ancient India*, no. 9 (1953), p. 101 and pl. XXIV, 4.

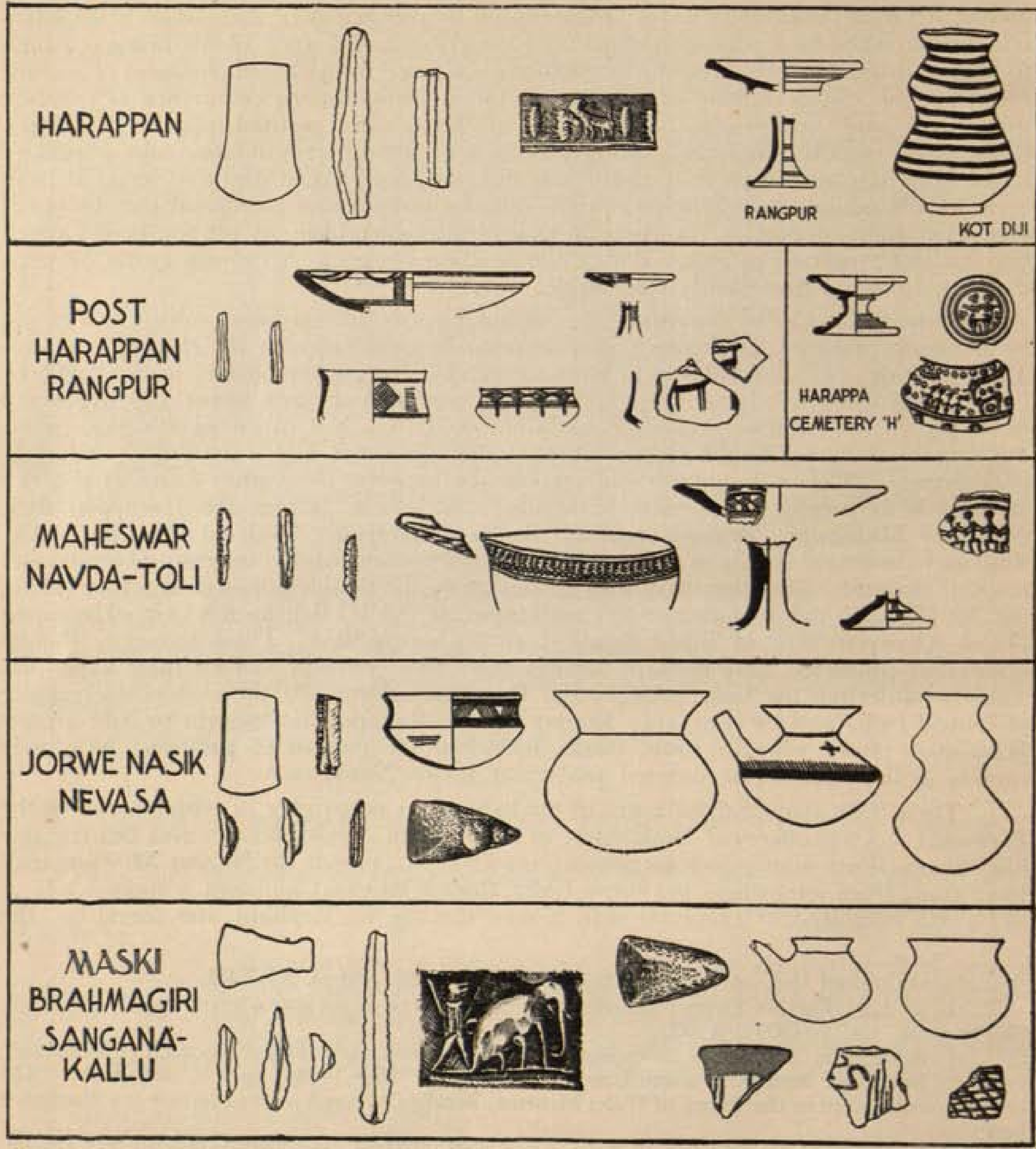


FIG. 3. *Common elements among the Harappan and other chalcolithic cultures. Not to scale*

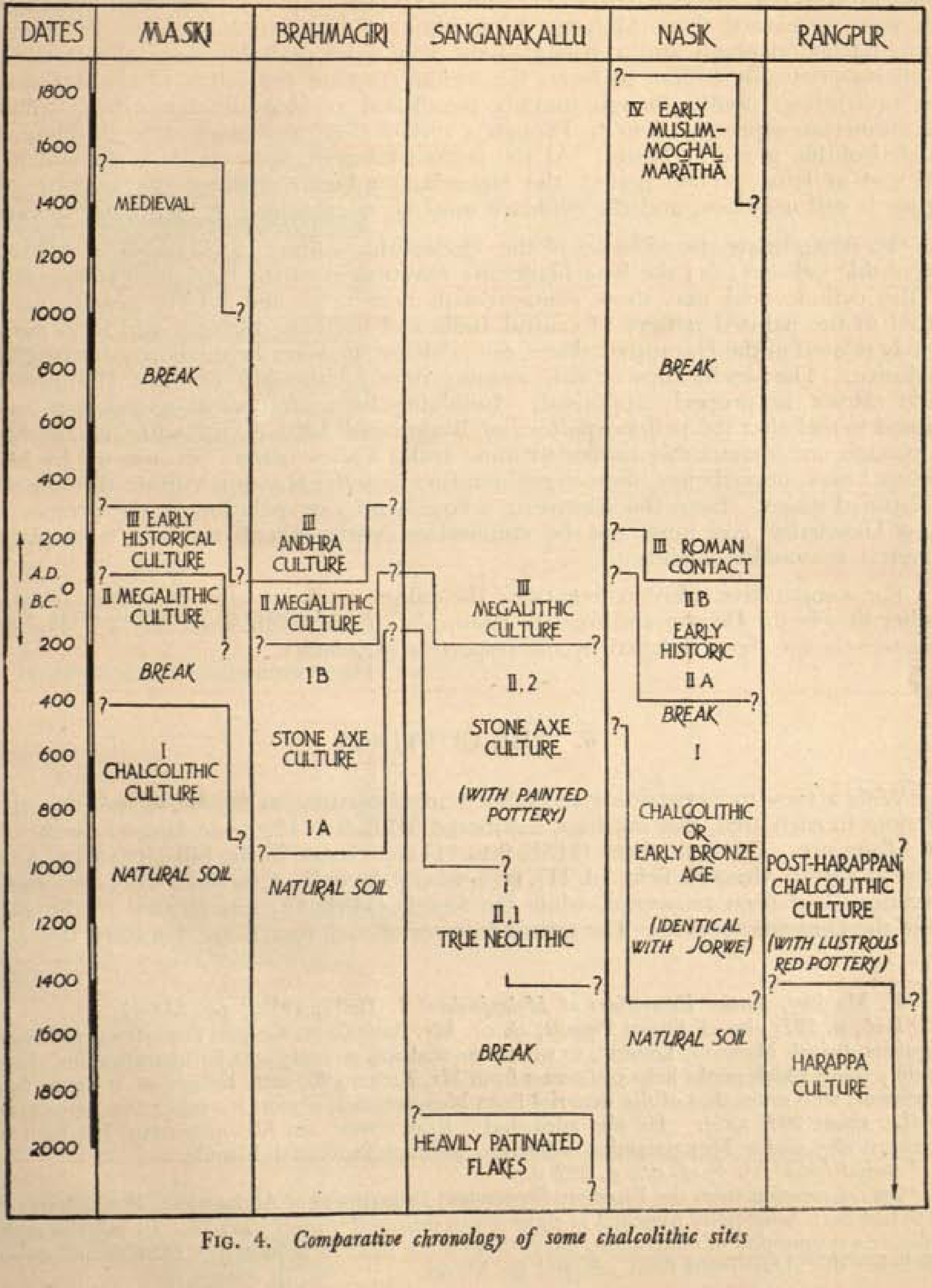


FIG. 4. *Comparative chronology of some chalcolithic sites*

surface at Maski between the years 1935 and 1937 (above, p. 9). The seal, as compared with those recovered from Mohenjo-daro,[1] shows a poor workmanship. Whereas the sloping-backed elephant and a groove at the base (and probably originally at the top) are characteristically Indian features, the curious 'radiate' head-dress of the naked man with protruding mouth, though roughly parallelled at Mohenjo-daro, shows affinities with Sumerian representations.[2] Though a surface-find, it is reasonable to relate it to the chalcolithic phase at Maski. At the present moment, however, it is difficult to see how and at what precise period the Sumerian influence affected the Deccan. The picture is still nebulous, and the evidence must be re-examined as knowledge advances.

To recapitulate the affinities of the chalcolithic culture of Maski with the other chalcolithic cultures: (a) the long blades are reminiscent of the Harappan ribbon-flakes; (b) the cylinder-seal may show contacts with Sumer; (c) the painted pottery may be related to the painted pottery of central India and northern Deccan, which, in turn, is vaguely related to the Harappa culture, the evidence, however being more indicative than conclusive. The significance of this seeming inter-relationship between Harappa and Maski cannot be properly appraised. Indulging for a moment in speculation, one is tempted to feel that the painted pottery of Brahmagiri IA, equated with that of Maski I, although not 'remarkably similar to some Indus Valley pottery' as asserted by M. H. Krishna,[3] may, nevertheless, show vague affinities with the Harappa culture through some unidentified stages. Even this statement is largely an extrapolation at the present state of our knowledge and must not be emphasized .until enough material is in place to warrant a reasonable inference.

For comparative reference regarding the culture-sequence and chronology obtaining at other sites in the Deccan and western Peninsula a table is subjoined (fig. 4). The dates given therein are those assigned by the respective excavators.

6. THE CUTTINGS

With a view to ascertaining the full extent of occupation as also to finding out the variations in each area, four cuttings, numbered MSK-9 to 12,[4] were laid out in different parts of the site. Of these, three (MSK-9 to 11) were made in the hill-girt valley, locally known as Sultan Ahmad's field (pl. II), from where the bulk of the finds from the previous excavations had been recovered, while the fourth (MSK-12) was located to the south-east of the Durgada Gudda. The salient features of each trench are described below.

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[1] E. Mackay, *Further Excavations at Mohenjo-daro*, I (Delhi, 1938), pp. 344-45.

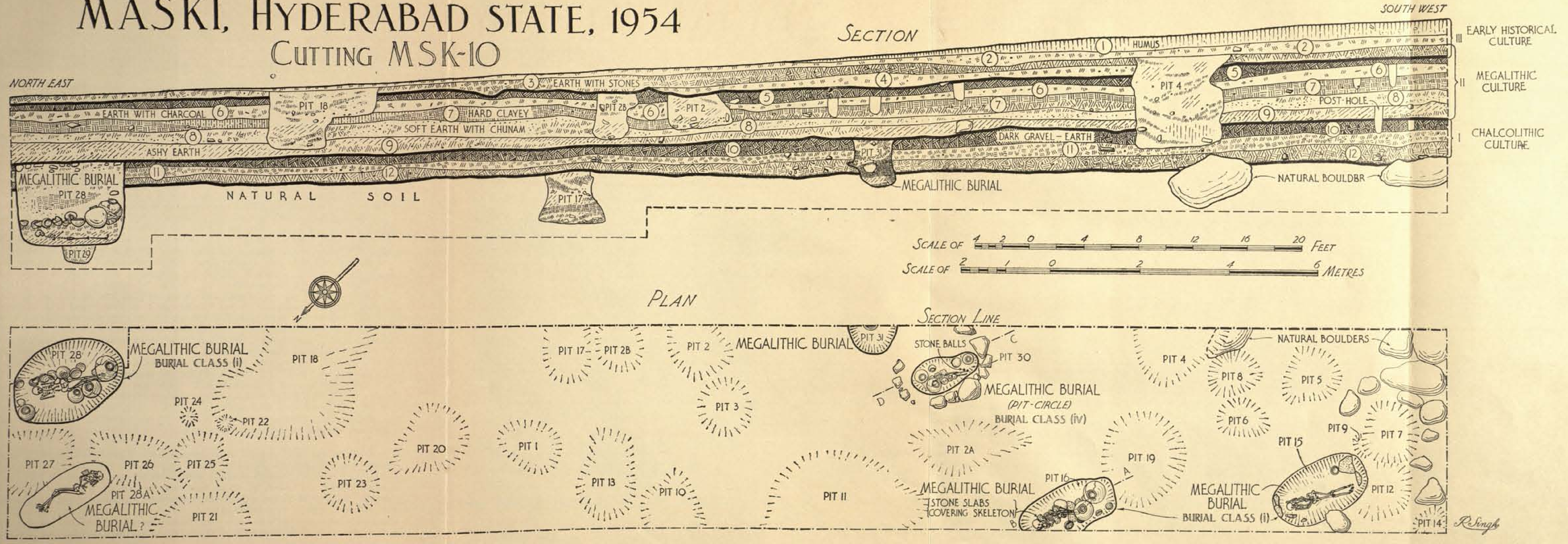
[2] *Ibid.*, p. 337; also cf. Stuart Piggott, *op. cit.* Mr. Basil Gray, Keeper, Department of Oriental Antiquities, British Museum, London, to whom the seal was recently sent for identification, reports: 'The only thing which might help you comes from Mr. Richard Barnett, Keeper of Western Asiatic Department, who states that of the material from Mesopotamia, it most resembles that from Jamdet Nasr (i.e. about 3000 B.C.). He also adds that it is, of course, not Mesopotamian, but hails from somewhere else under Mesopotamian influence, perhaps provincial Elamite.'

[3] *Ancient India*, no. 4, *op. cit.*, p. 222 n.

[4] On information from the Director, Hyderabad Department of Archaeology, it was learnt that the site had been principally trenched at eight places during the years 1935-37. In order, therefore, to indicate a resumption of excavation, the cuttings made in 1954 were named MSK-9 and onwards, MSK being the abbreviated form adopted for Maski.

MASKI, HYDERABAD STATE, 1954

CUTTING MSK-10



A. Cutting MSK-9

This Cutting (marked B on pl. II), oriented north-south, was laid out to measure 45 ft. in length and 15 ft. in width, with a lateral eastward extension of 7½ ft. for the first 18 ft. of the length from the south. The natural gravel was reached at an average depth of 2 ft. 5 in. below the present surface. The entire thickness of the occupational deposit, represented by dark compact earth mixed with gravel, save for a few inches of surface-humus, belonged to Period I, the chalcolithic phase. Excepting a limited area, all the strata were disturbed by burial-pits belonging to the next Period, II, when the site was used as a burial-ground by the intruding megalith-folk. As many as eight megalithic burials, belonging to two classes, B(ii) and B(iii), one each of which was taken up for excavation (below, pp. 30-32), were located within the area of the trench. The site was deserted thereafter, and the only indications of its later use were a few pits filled with débris and animal-bones belonging to Period III. One of such pits was noticed to have partially disturbed a megalithic burial.

B. Cutting MSK-10 (pls. III-X and XII)

This Cutting presented a complete section of the culture-sequence obtained at Maski and was thus the most informative. It was laid out on the foot of the Durgada Gudda (marked A on pl. II), measured 105 ft. in length and 15 ft. in width and was throughout cut down to the hard natural bed-rock lying at an average depth of 9½ ft. below the present surface. Immediately overlying the natural soil was a 3½-ft. homogeneous deposit of dark gravelly earth of varying compactness, which represented three layers, numbered 10-12. These strata related to Period I and yielded the characteristic chalcolithic equipment (above, pp. 12-13). The notable objects recovered from layer 12 included: asymmetrical flakes which could be used as scrapers (pl. XXIII, *4* and *5*), pointed-backed blades (pl. XXIII, *16* and *17*), a lunate (pl. XXIV, *20*), a discoid scraper (pl. XXIV, *23*), a burin (?) (pl. XXIV, *38*) and hammer-stones and sling-stones (pl. XXVI, *1*, *2* and *5* respectively). The larger portion of the painted pottery was recovered from this layer and the contemporary pits cut into the natural soil than from elsewhere. The pits, numbered 8, 17, 19 and 29, contained, besides pottery (including plain ware) and microliths, a large number of animal-remains (below, p. 121-29). From layer 11 were obtained, amongst other things, a copper rod (fig. 34, *1*), a distinctive paste bead (pl. XXVII, *31*), a long parallel-sided blade (pl. XXIII, *9*), an inverse scraper (pl. XXIV, *24*) and bimarginally inverse retouched points (pl. XXIV, *36* and *37*). Two pits, numbered 22 and 24, were also equated with this layer. The outstanding finds of layer 10 were a parallel-sided blade, the longest found in the present excavation (pl. XXIII, *6*), a crescentic blade (pl. XXIII, *18*), a trapeze (pl. XXIV, *22*), a flake with crested ridge (pl. XXV A, *40*), a hammer-stone and a sling-stone (pl. XXVI, *3* and *7* respectively). The soil-samples collected from layers 10 and 11 and pit 17 did not contain any determinable grains (below, p. 130).

Period II began with layer 9 and continued up to layer 4. The noteworthy feature of the Period was the situation of burial-pits, numbered 15, 16, 28, 28A, 30 and 31 (below, pp. 27-33). All the pits dug into the chalcolithic strata of Period I could be equated with the first occupation of the site by the megalithic people of Period II. Unlike MSK-9, the site remained under habitation uninterruptedly till the end of Period III. Layer 9 was an ashy deposit and layer 8 an alluvial clay with admixture of lime. Soil-samples from this deposit yielded pollen-grains resembling those of *Pinus*, *Brassica*, *Campanula*, *Stellaria*, *Lychnis* and *Juglandaceae* (below, pp. 130-33). Layers 5 and 7 were composed of

clayey earth separated from each other by a soft charcoaly deposit, labelled layer 6, the top of which was marked by many post-holes. Layers 3 and 4, of loose earth, with a maximum thickness of 2 ft., showed an overlap between Periods II and III. Pits 2, 3, 6, 7, 12-14, 23 and 25-27, all refuse-pits, as judged from their contents, belonged to this Period.

Period III was indicated by layers 1-4, of which the upper two, viz. layers 1 and 2, were largely eroded away due to the sloping nature of the present surface around the Cutting. Pits 1, 2A, 4, 5, 9-11, 18, 20 and 21 belonged to this Period. Of them, Pits 1, 2A, 11 and 18, sealed by the surface-humus, seemed to have been dug after the desertion of the site, as they contained late material including medieval coins, stratified polychrome glass bangles and grey pottery.

No structures were encountered in any of the Periods.

C. Cutting MSK-11

The site (marked C on pl. II) lay on the saddle of a hill overlooking a rock-engraving. The excavated area measured 9 ft. by 9 ft. but was found to be badly disturbed by a pottery-pit ascribable to Period III. The natural gravel was reached at a depth of 5 ft. 2 in. from the present surface. A few microliths and the typical thick grey ware of Preiod I were obtained from the undisturbed strata, while the pit itself yielded an enormous quantity of familiar bowls with tapering sides and two terracotta spools (pl. XXIX A, *4* and *5*).

D. Cutting MSK-12

This Cutting located on the south-eastern foot of the Durgada Gudda and oriented east-west, was laid out to measure 18 ft. in length and 12 ft. in width. The entire area was dug down to the natural soil, which was reached at an average depth of 4 ft. 4 in. below the present surface. A remarkable feature of the trench was the existence of an erosional pit considerably scouring the regular strata and seemingly filled by natural agencies as indicated by stratified deposits of ash, charcoal and brown lime interspersed with fine sand-bands. The occupational deposit represented a single culture, characterized by burnished grey pottery and early Muslim coins (pl. XXX, *6*). A few stray microliths were also obtained (pl. XXIII, *8*).

E. Rock-shelter MSK CV-1 (pl. XVII A)

In addition to the above cuttings, a rock-shelter located on the northern face of the Durgada Gudda overlooking the Maski village was also taken up for excavation. The shelter consisted of a deep cave-like hollow between huge boulders and measured 10 ft. 6 in. by 11 ft. at the floor-level. On excavation the occupation-deposit, varying in depth between 9 in. and 1½ ft., was found to be badly disturbed, with the result that no stratified deposit was available. Microliths, iron objects, megalithic Black-and-red Ware and burnished grey ware of the Medieval Period were all found mixed up in the same deposit. The occurrence of recent skeletal remains of a child, possibly preyed upon by wild animals frequenting the shelter, confirmed the disturbance.

7. THE MEGALITHS

Besides two menhirs, which were expected to have sepulchral association but by excavation were found to have none, five classes of burials of megalithic affiliation, numbered

B(i) to B(v),[1] were encountered. Of them, three classes B(i) to B(iii), were without any lithic appendage.

A. Burials (pls. VIII-XIV)

The burials at Maski, notably classes B(i) and B(iv), though belonging to the south Indian megalithic complex, revealed some new features meriting attention. These include: (a) the occurrence of burials in the habitation-area itself; (b) the inhumation of the complete skeleton in an extended position; (c) the north-south orientation of the major axis of the grave-pits, as opposed to the east-west at Brahmagiri indicated there by the port-hole in the case of cist-circles and the non-functional door-slab backed by a short shallow ramp in the case of pit-circles; and (d) the use of lime or ash on the pit-floor,[2] possibly as a preservative for the skeletal remains. The details of each burial are described below under the class to which it belongs.

(i) *Class B(i)* (pls. VIII-X)

Four burials of this class were exposed, all located in the habitation-area itself in Cutting MSK-10 and equated with the first occupation of the site by the megalith-people. The essential details of this class are as follows. First, an elliptical pit was dug out to a varying depth of 3½ to 6 ft. On the floor of the pit ash was spread to a varying thickness of 4 to 5 in., over which the skeleton was placed in position and was covered over again with ash. In one instance, instead of ash lime was used. Sometimes the skeleton was covered with stone slabs. Above this covering were arranged the funeral furnishings in the form of pottery and iron implements. The pit was thereafter filled with the same dug-out earth mixed occasionally with alluvial clayey clods resembling the fillings of the Brahmagiri pit-circles. On surface, it was not indicated by any lithic demarcation.

Pit 15.—It was roughly elliptical on plan and measured 7 ft. 4 in. by 4 ft., with the longer axis along north-south, being 30° magnetic (pls. VII and VIII A). It was dug to a depth of 3 ft. 7 in. into the chalcolithic layers (10-12) and the natural soil. At the bottom, it seems to have been roughly outlined with stones. In the central area of the pit-floor lay an extended articulated skeleton of a female, oriented from north to south with the head to the north and turned towards the west. With it but at a somewhat higher level was a pot of Black-and-red Ware placed along the edge of the pit opposite the left knee-joint. The skeleton was covered over with a coating of lime, traces of which were available on either side in the shape of white bands. Above this the pit was filled up with the dug-out earth mixed with lime and alluvial clayey clods.

The skull,[3] together with the teeth, was complete. All the teeth, both in the maxilla and the mandible, were erupted. The left humerus, dislodged from its cavity, was seen raised up to the occipital region. The left radius and ulna, though disarticulated, were in position. The right side was fully articulated. It appeared that both the hands met at the pelvic region where the carpals, metacarpals and phalanges were lying mixed up. Some of the ribs seemed to have been dislocated and were seen below the left ulna.

[1] The index-letter B, followed within brackets by Roman numerals, indicates the class of the megalithic burials.

[2] At Brahmagiri the door-slabs both in the cist and pit-circles were backed by lime. Cf. *Ancient India*, no. 4, *op. cit.*, pp. 187-99.

[3] Full details regarding this and the other skeletons are awaited from the Assistant Anthropologist, Department of Anthropology, Calcutta. In the meantime these are described as found during excavation.

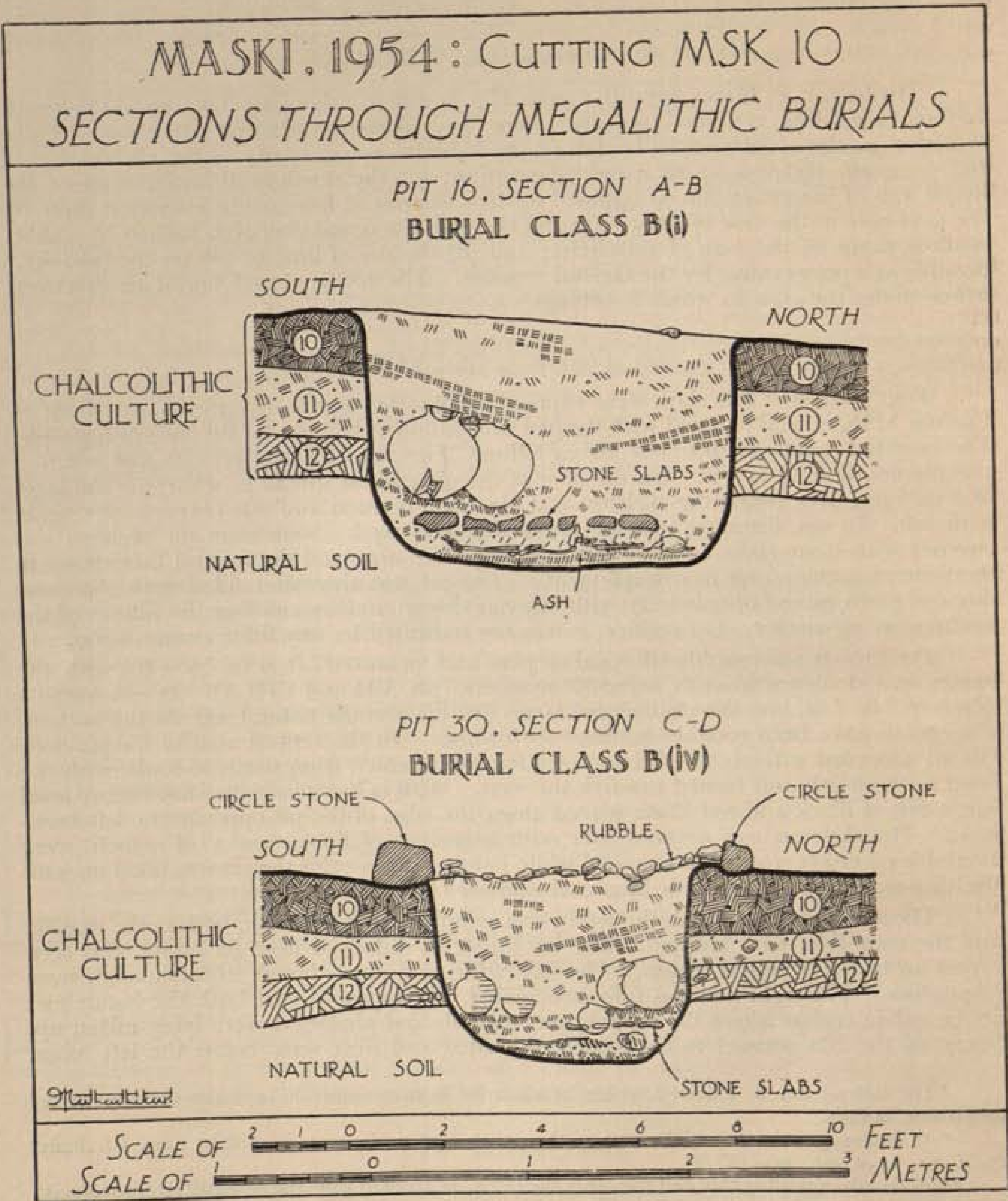

MASKI, 1954: CUTTING MSK 10
SECTIONS THROUGH MEGALITHIC BURIALS
PIT 16. SECTION A-B
BURIAL CLASS B(i)
SOUTH
NORTH
CHALCOLITHIC CULTURE
10
11
12
STONE SLABS
NATURAL SOIL
ASH
PIT 30. SECTION C-D
BURIAL CLASS B(iv)
CIRCLE STONE
CIRCLE STONE
RUBBLE
SOUTH
NORTH
CHALCOLITHIC CULTURE
NATURAL SOIL
STONE SLABS
SCALE OF 2 1 0 2 4 6 8 10 FEET
SCALE OF 1 0 1 2 3 METRES

FIG. 5

The left acetabulum was badly disintegrated, and the lower part of the left tibia and fibia was broken. Fragments of metatarsals and phalanges were available. The right leg was complete and fully articulated. Some of the phalanges were missing. The skeleton was otherwise in a good state of preservation.

The height of the skeleton was 5 ft. 1 in.

PIT 16.—It was roughly elliptical on plan and measured 7 ft. 6 in. by 3 ft. 6 in. with the longer axis along north-south, being 25° magnetic (fig. 5; pls. VII, IX and X A). It was dug to a depth of 5 ft. into the chalcolithic layers 10-12 and the natural soil. In the central area of the pit-floor lay, over a 3-to 5-in. thick deposit of ash, an extended partly disarticulated skeleton of a male, oriented from north to south with the head to the north and turned towards west. From the fibrous nature of the ash-deposit it was inferred that before the body had been lowered into the grave-pit, six or seven wooden sticks of an average length of 7 ft. and diameter of 3 to 4 in. were burnt to ash *in situ*.[1] What the ritual represented could not be guessed from this isolated example. The skeleton was then covered with seven slabs. Towards the feet and partly overlying the slabs were placed two big jars (fig. 16, *B*(*i*)*12* and *12a*), while another was put in the centre (fig. 15, *B*(*i*)*10*). The jar lying to the edge of the pit contained three pots, one of which was of unique shape (fig. 14, *B*(*i*)*6*). In addition, five bowls of Black-and-red Ware were also placed along the western and two on the southern side of the pit. A tanged arrow-head (fig. 36, *8*) and a fragmentary knife-blade (fig. 36, *9*) were found outside the ash-limits on the left side of the skeleton. Above this the pit was filled with the dug-out earth mixed occasionally with ash and dark clayey clods.

The skull with the parietal region faced west. The mandible was dislodged from its proper position and made roughly a right angle with the maxilla. Except for the last molar and two incisors, all the teeth were erupted both in the maxilla and mandible. The articulation up to the pelvic region was very badly disturbed, notably the vertebral column, the constituents of which were seen scattered near the vertex, occipital region, between the maxilla and the mandible and even below the pelvis. The last dorsal and the five lumbar vertebrae were in proper position, the last lumbar articulating with the sacrum. The ribs too were similarly displaced: one of these was lying near the left femur. The right humerus, dislodged from its original position, was seen near the frontal region of the skull. Whereas the right clavicle and scapula were not seen, the left ones were in position. The right radius and ulna were found below the humerus and the metacarpals in a lump near the vertex. The left humerus was dislodged from its cavity. The left radius was lying near the lumbar vertebrae, while the ulna was thrown across the femur. The metacarpals and phalanges were also seen scattered around the pelvic region and femero-tibial joint. The sacrum was in a much disintegrated condition. The pelvis was broken. The head of the left femur was articulated in its acetabular cavity. The right femur, though not articulated, was in position and ran parallel to the left one. The right fibula was out of context. The tarsals, metatarsals and phalanges were seen in a lump round about the lower ends of both the tibias. One of the patellas, possibly the left, was found out of context near the right side of the pelvis; the other was not seen.

The height of the skeleton was 5 ft. 2 in.

PIT 28.—It was oval on plan and measured 8 ft. by 5 ft. 9 in., with the longer axis along north-south, being 35° magnetic (pls. VII and VIII B). Like the previous pits, it was dug to a depth of 6 ft. into the chalcolithic layers 10-12 and the natural soil. In the central area of the pit-floor lay, over a 4- to 7-in. thick ash-deposit, an articulated extended

[1] Samples of this burnt material have been sent to the National Physical Laboratory, New Delhi, for radio-carbon analysis. A report thereon is awaited.

skeleton of a male, oriented from north to south with the head to the north and turned towards the sky. Roughly below the pelvic region, a badly crushed red-ware pot was found. The skeleton seems to have been covered all around with ash. With it were twentyone pots which overlay the ash-covering. The main deposit, was, however, towards the left side, arranged between the pelvis and the skull. Some of the bowls were lying one within the other. On the right side of the skeleton were four pots, while towards the feet was a big jar. Some animal-bones (below, p. 128) were also found nearly 4 in. higher than the skeleton-level and seemed to have been deposited alongside the pottery after the skeleton had been covered with ash. An iron knife-blade (fig. 36, 7) was also seen lying near about the lump of animal-remains. Above this the pit was filled with the dug-out soil mixed with alluvial clayey clods and loose earth.

The skull was badly cracked, resulting in the dislocation of the sutures. The frontal region including the maxilla was not properly sitting over the mandible and thus presented a twisted appearance. The teeth of the maxilla were mostly missing, while those of the mandible were intact. Both the clavicles were lying displaced over the ribs. Similarly the humerii were dislodged from the scapular cavities. The left radius and ulna were not in articulation. The latter was seen projecting into the dorsal vertebrae with the lower end raised upwards in an oblique angle. The right radius and ulna were likewise out of context. The metacarpals and phalanges were found mixed up near about the pelvic region. The rest of the skeleton, including the tarsals and metatarsals, was fully articulated. The phalanges, however, were dislodged and incomplete.

The height of the skeleton was 5 ft. 4 in.

PIT 28A.—It was elliptical on plan and measured 7 ft. by 2 ft. 9 in., with the longer axis along north-south, being 18° magnetic (pls. VII and X B). It was dug to a depth of only 2 ft. into layers 10-11. On the pit-floor lay a skeleton in a partly-flexed condition, oriented from south to north with the head to the south and turned towards the east. This seems to be an aberration, since the heads of all other excavated skeletons were towards the north. Furthermore, it was unaccompanied by any other funerary deposit.

The skull, especially the parietal and occipital regions, was in a badly-crushed condition. The maxilla was lying dislodged below the mandible. The ribs and the vertebrae, though in position, were very fragile and even incomplete. The sternum could also be seen above the vertebrae, which were complete. The right humerus was in position, while the radius and ulna, though articulated, were broken. The left humerus, radius and ulna were in a fragmentary condition. The carpals and metacarpals were incomplete and were lying scattered near the sacrum. The acetabular portions were disintegrated. The rest of the skeleton, excepting the left fibula, was in articulation including the tarsals. The skeleton was in a slightly flexed condition with the right tibia and fibula under the left ones.

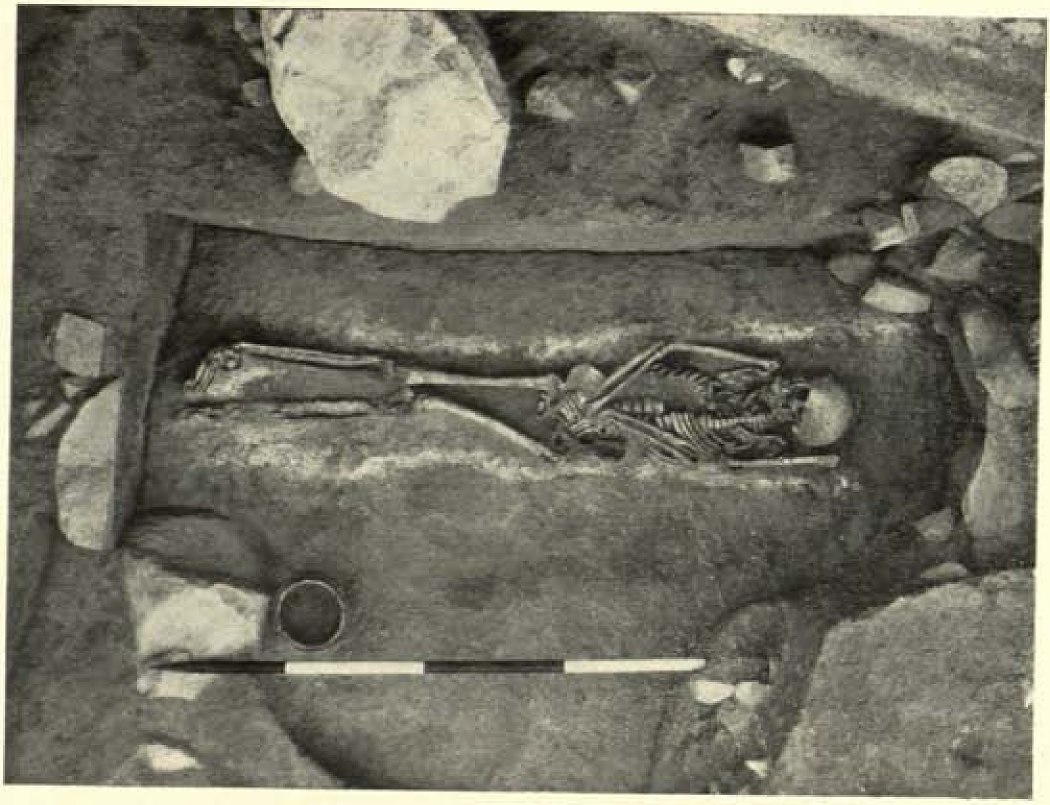
The height of the skeleton was 5 ft. 3 in.

(ii) *Class B(ii)*

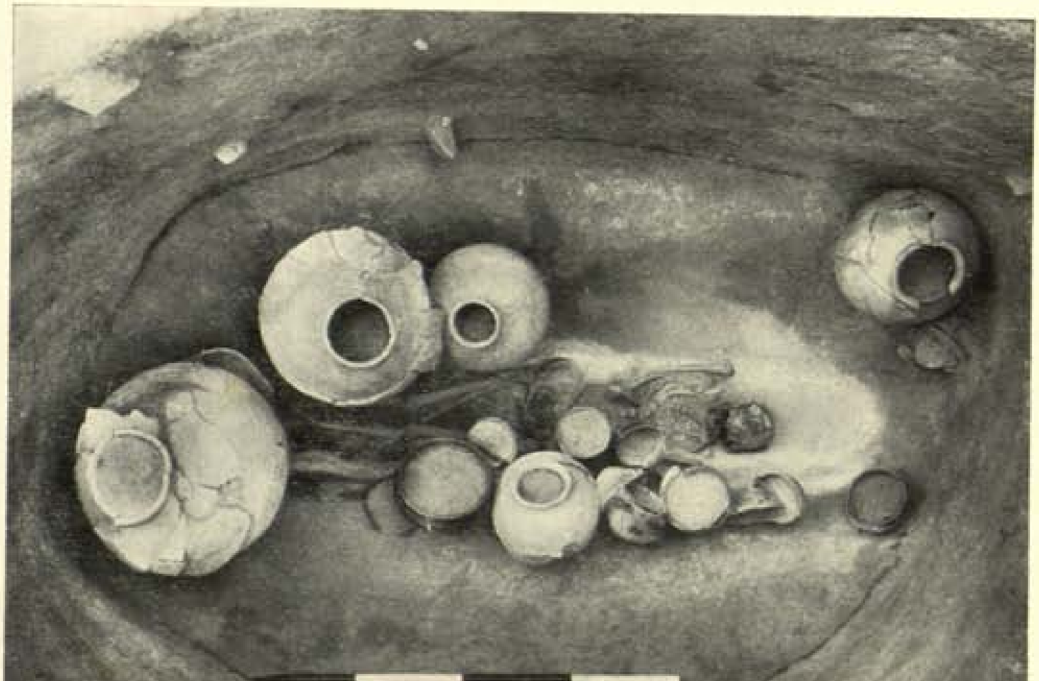
The class is distinguished from B(i) by the east-west orientation of the longer axis and the fractional nature of the burial.[1] Six burials of this class, all located in the Cutting MSK-9, were recorded. Only one, however, was fully excavated.

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[1] The pit representing Pottery Group B beside and prior to cist VI at Brahmagiri, although without any skeletal remains and partially floored with slabs, affords the only comparable analogy with this class of burial. Cf. *Ancient India*, no. 4, *op. cit.*, pp. 192 and 221 and pl. LXXXIX.

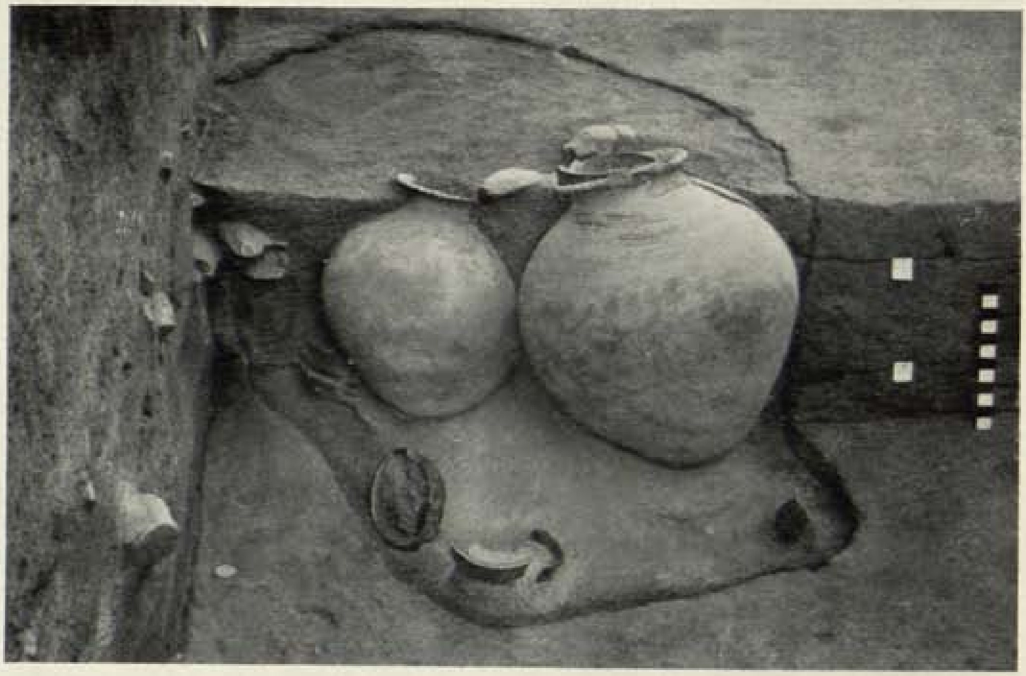


A. *Cutting MSK-10: pit 15, burial-class B(i); pit-floor showing an extended skeleton and a single pot. The white band running on either side of the skeleton represents lime. See pages 27-29*



B. *Cutting MSK-10: pit 28, burial-class B(i); pit-floor showing an extended skeleton and pottery. The white patch around the head of the skeleton and partly running beneath it represents ash. See pages 29-30*

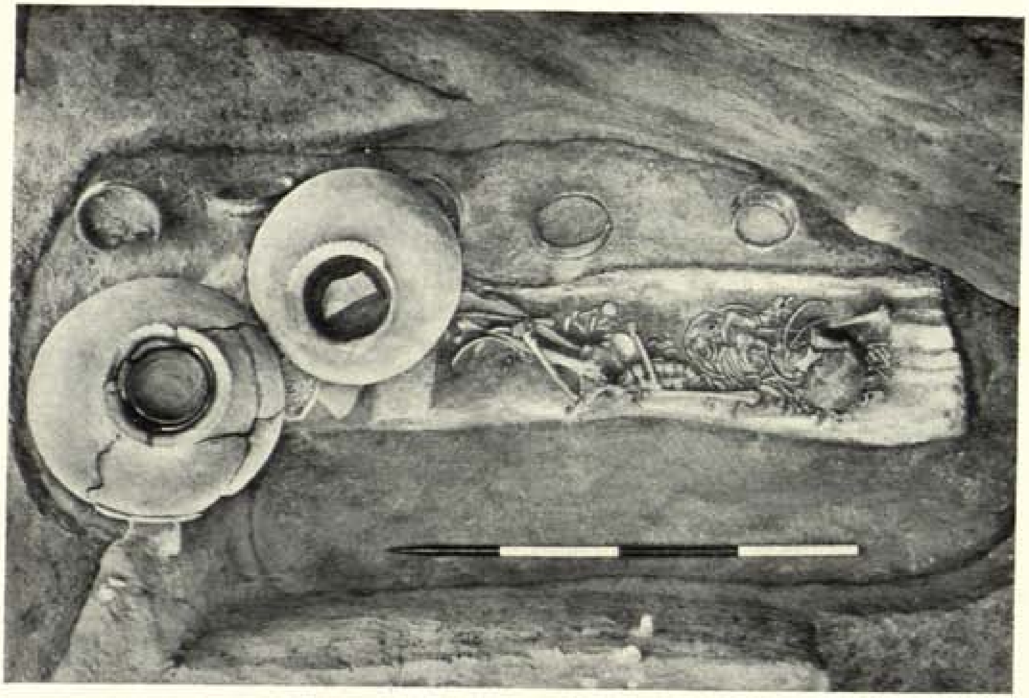
To face plate X



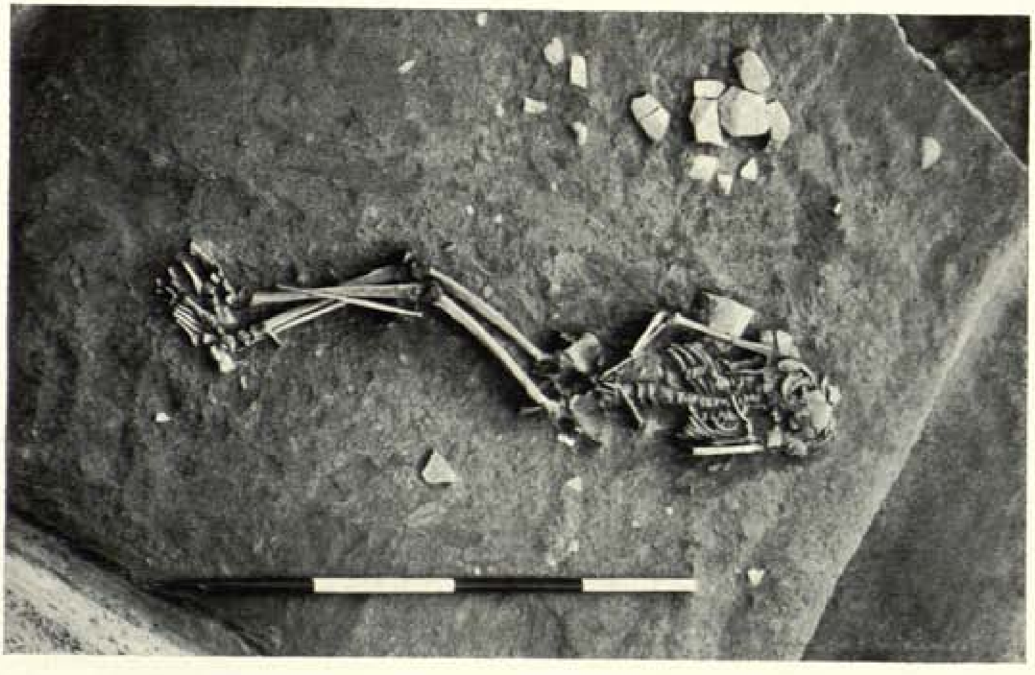
A. *Cutting MSK-10: section across pit 16, burial-class B(i), during excavation.* *See page 29*



B. *Cutting MSK-10: pit 16, burial-class B(i); during excavation, showing pottery and stone slabs below which a skeleton was revealed,* *See page 29*

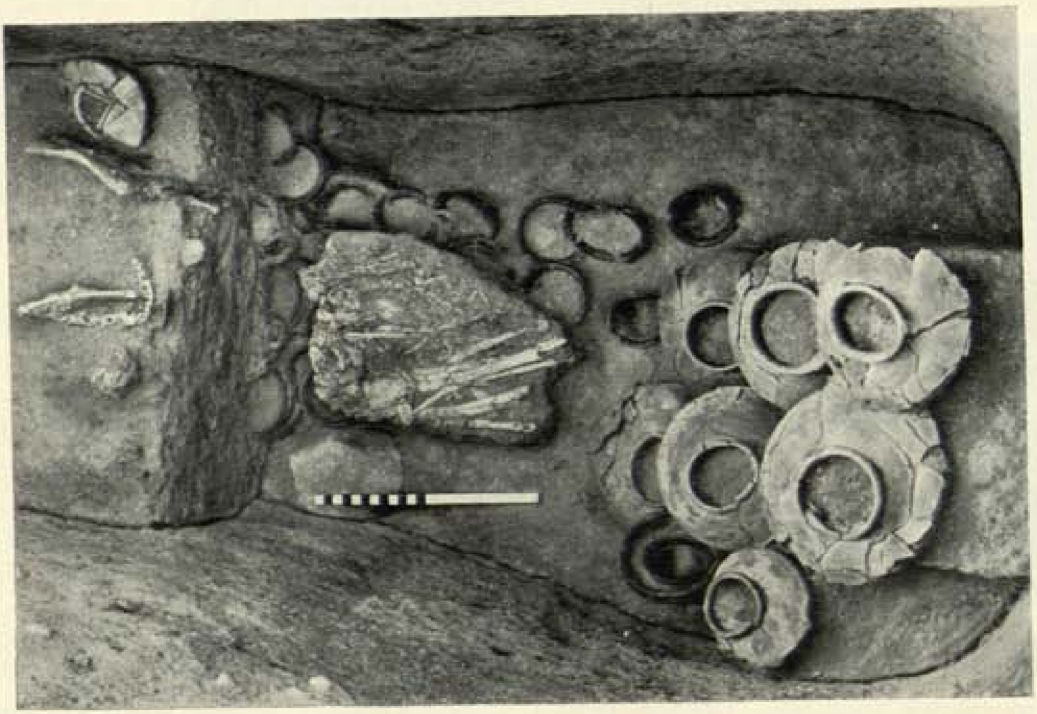


A. *Cutting MSK-10: pit 16, burial-class B(i); pit-floor showing a partly disarticulated skeleton and pottery. The white band on either side of the skeleton as also around the head represents ash.* *See page 29*

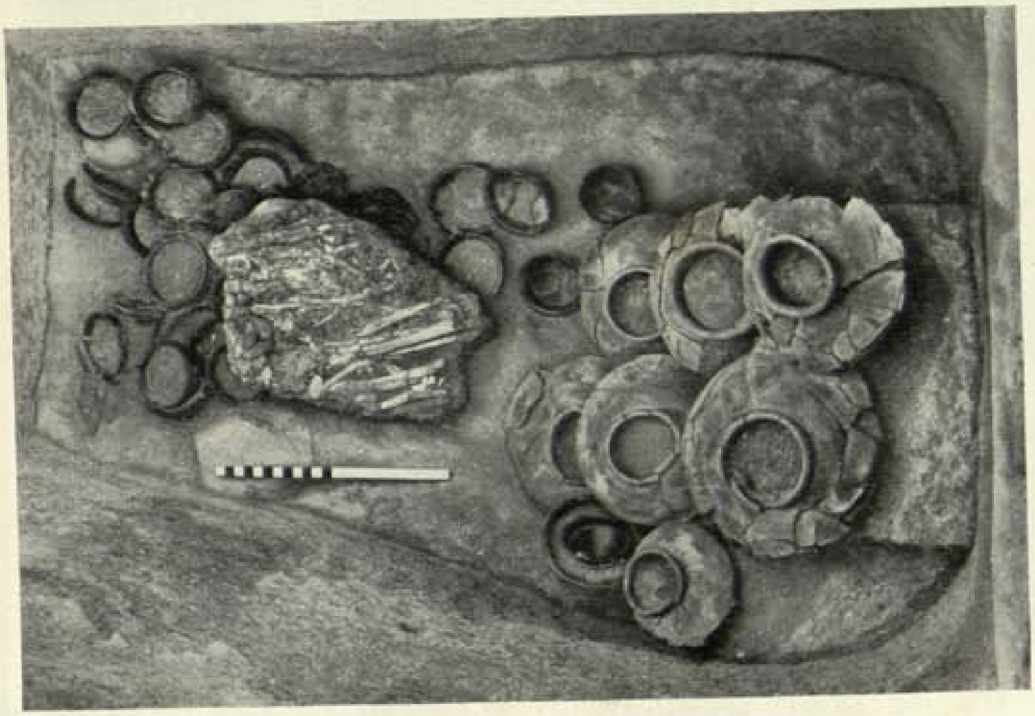


B. *Cutting MSK-10: pit 28A, burial-class B(i); pit-floor showing a partly flexed skeleton unaccompanied by any funerary deposit.* *See page 30*

To face page 31



A. Cutting MSK-9: pit 2, burial-class B(ii); pit-floor showing pottery and skeletal remains. A few long bones of the domestic sheep are also seen towards the top. *See page 32*



B. Cutting MSK-9: pit 2, burial-class B(ii); pit-floor after removal of the animal-remains. *See page 32*

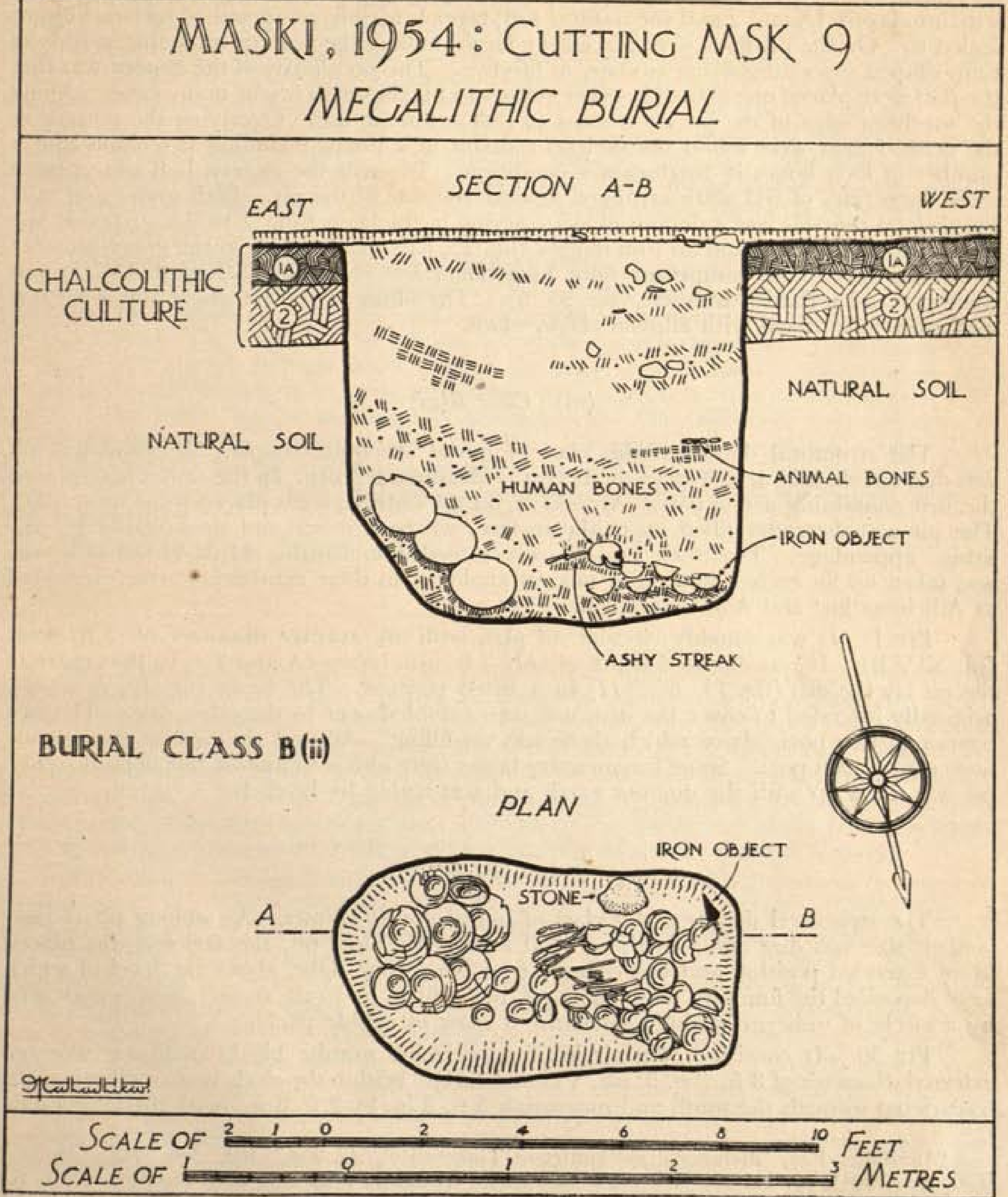

MASKI, 1954: CUTTING MSK 9
MEGALITHIC BURIAL
SECTION A-B
EAST
WEST
CHALCOLITHIC CULTURE
1A
2
NATURAL SOIL
NATURAL SOIL
ANIMAL BONES
HUMAN BONES
IRON OBJECT
ASHY STREAK
BURIAL CLASS B(ii)
PLAN
IRON OBJECT
STONE
A
B
SCALE OF 2 1 0 2 4 6 8 10 FEET
SCALE OF 1 0 1 2 3 METRES

FIG. 6

PIT 2.—It was roughly elliptical on plan and measured 8 ft. 2 in. by 4 ft., with the longer axis along east-west, being 104° magnetic (fig. 6; pl. XI). It was dug to a depth of 7 ft. 9 in. into layers 1A and 2 and the natural soil; layer 1, mainly composed of surface-humus, sealed it. On the pit-floor were placed the larger bulk of the pottery consisting mainly of tulip-shaped vases numbering as many as fiftyfive. The peculiarity of the deposit was that the pots were placed one above the other going to a maximum of five in many cases. Along the southern edge of the pit lay a stone of indeterminate use. Overlying the pottery in the central area were found the skeletal remains in a lump, including two skulls and a number of long bones in fragmentary condition. Towards the eastern half were placed seven large jars of red ware arranged against the side of the pit. Both under and over the skeletal remains was a deposit of ash, varying in thickness from 2 to 3 in. Beside the skeletal remains was found an iron dagger (fig. 35, *6*). Halfway up in the grave-pit were found animal-remains comprising some long bones and vertebrae (below, p. 128), a red ware pot and a flattish iron axe (fig. 35, *5*). The filling of the pit above this level was uniformly soft, mixed with alluvial clayey clods.

(iii) *Class B(iii)*

The structural details of this class of burial are quite simple. A cylindrical pit was dug out slightly deeper than the height of the intended urn. In the centre was placed the urn containing a few pots. Around it, on the outside, were placed some more pots. The pit was thereafter filled up to the surface, whereon it was not demarcated by any lithic appendage. Two such burials were recorded in Cutting MSK-9, but only one was taken up for excavation. The nearest analogies to these urn-burials were excavated at Adichanallur[1] and Amirthamangalam.[2]

PIT 1.—It was roughly circular on plan with an average diameter of 2 ft. 9 in. (pl. XIV B). It was dug to a depth of only 2 ft. into layers 1A and 2. In the centre of the pit lay the urn (fig. 19, *B(iii)11*) in a tilted position. The basin (fig. 19, *B(iii)10*), originally intended to cover the urn, was seen tumbled over to the other side. The urn contained two pots, above which there was no filling. Around the urn on the outside were seen eleven pots. Some fragmentary bones were also seen amidst this deposit. The pit was filled up with the dug-out earth and was sealed by layer 1.

(iv) *Class B(iv)*

The structural details of this class of burial are as follows. An oblong pit of convenient size was dug out. In the central area of the floor-pit, the skeleton was placed in an extended position and was covered over with stone slabs, above the level of which were deposited the funerary pots. The pit, being filled up to the surface, was demarcated by a circle of unhewn boulders enclosing a mass of rubble packing.

PIT 30.—It consisted of a circle of untrimmed granite blocks with an average external diameter of 8 ft. (fig. 5; pls. VII and XII). Within the circle was an elliptical pit constricted towards the south and measuring 5 ft. 3 in. by 2 ft. 8 in., with the longer axis

[1] Alexander Rea, 'Prehistoric antiquities in Tinnevelley', *An. Rep. Arch. Surv. Ind., 1902-03* (Calcutta, 1904), pp. 111-40. For other sites where sepulchral urns have been recorded, see B. K. Thapar, 'Porkalam 1948: excavation of a megalithic urn-burial', *Ancient India*, no. 8 (1952), p. 5.

[2] Banerjee, *op. cit.*

along north-south, being 24° magnetic. It was dug to a depth of 3 ft. 9 in. into layers 10-12 and the natural soil. Three stones of indeterminate use were seen at the bottom of the pit. Slightly above the floor of the pit lay an extended articulated skeleton of a child oriented from south to north with the head to the north and turned towards the west. Near the right foot were found two stone balls. Presumably these being dear to the child were also placed in the grave-pit as part of the funerary furnishings. The skeleton was covered with four stone slabs, over which were deposited the pottery comprising a bowl of Black-and-red Ware and four vases of red ware. The alluvial clayey clods were seen around and partly under the pots. The filling above the pots was of loose earth mixed with small stones. The area enclosed within the circle of boulders was packed with rubble.

The skull, notably the parietal and frontal regions, was badly crushed. Part of the maxilla and a larger portion of the mandible were intact and in proper position. Both right and left scapula and clavicle were badly broken as also some of the vertebrae notably the cervical and the dorsal. The lumbar vertebrae were in position. The upper end of the right humerus and the lower half of the ulna were broken. Remains of the carpals and metacarpals were lying in a lump in the sacral portion of the coccy. The bones of the pelvic region were mostly decomposed. The legs were fully articulated with both the patellas in proper position. The left fibula lay under the tibia. The acetabular portion on the right was completely decayed along with the upper end of the femur. The metatarsals and phalanges were almost crushed, while the tarsals were in their true position.

The height of the skeleton was 3 ft. 2 in.

(v) *Class B(v)*

This class of burial has rudimentary resemblances with the pit-circles at Brahmagiri. It was encountered on the western side of the Durgada Gudda near the menhirs and alignments (?) (below, p. 35-37). Only two such monuments were recorded in the area and one was excavated. The structural details are as follows. A circle was formed by untrimmed boulders. In the centre a rectangular pit was dug out with a shallow ramp on the eastern side. Three to 7 in. above the floor of the pit were placed the skeletal remains along with iron objects and pottery. The pit was filled up to the rim with loose earth mixed with ash and sand followed by a packing of rubble rising as a cairn.

MSK Meg-2.—It consisted of a circle of untrimmed granite boulders with an external diameter of 17 ft. The circle stones were, however, missing on the southern side (fig. 7; pls. XIII and XIV A). In the centre of the circle was a rectangular pit, measuring 7 ft. 3 in. by 2 ft. 8 in., with the longer axis roughly east-west, being 117·5° magnetic. A shallow ramp led down to the eastern brim of the pit. There was no occupation of the site prior to the digging of the pit, which was excavated to a depth of nearly 6 ft. into the hard natural bed-rock of gravel. At the bottom of the pit lay two stones. In the central area, 6 ft. 2 in. by 1 ft. 3 in., a 3- to 4-in. deposit of ash was spread. Over it were placed the skeletal remains and four iron implements, three of which were lances (fig. 35, *2-4*). The bulk of the pottery-deposit lay above the level of the skeletal remains along the northern side of the pit. Two pots, however, were placed on the southern end. In total, sixteen pots were deposited in the grave. To the brim-level the pit was filled with soft earth mixed with the usual black clayey clods. Above this the enclosed area was packed with a mass of rubble rising as high as the circle stones. An interesting find recovered from this rubble packing was a polished stone axe (fig. 33, *1*; pl. XXV B, *1*).

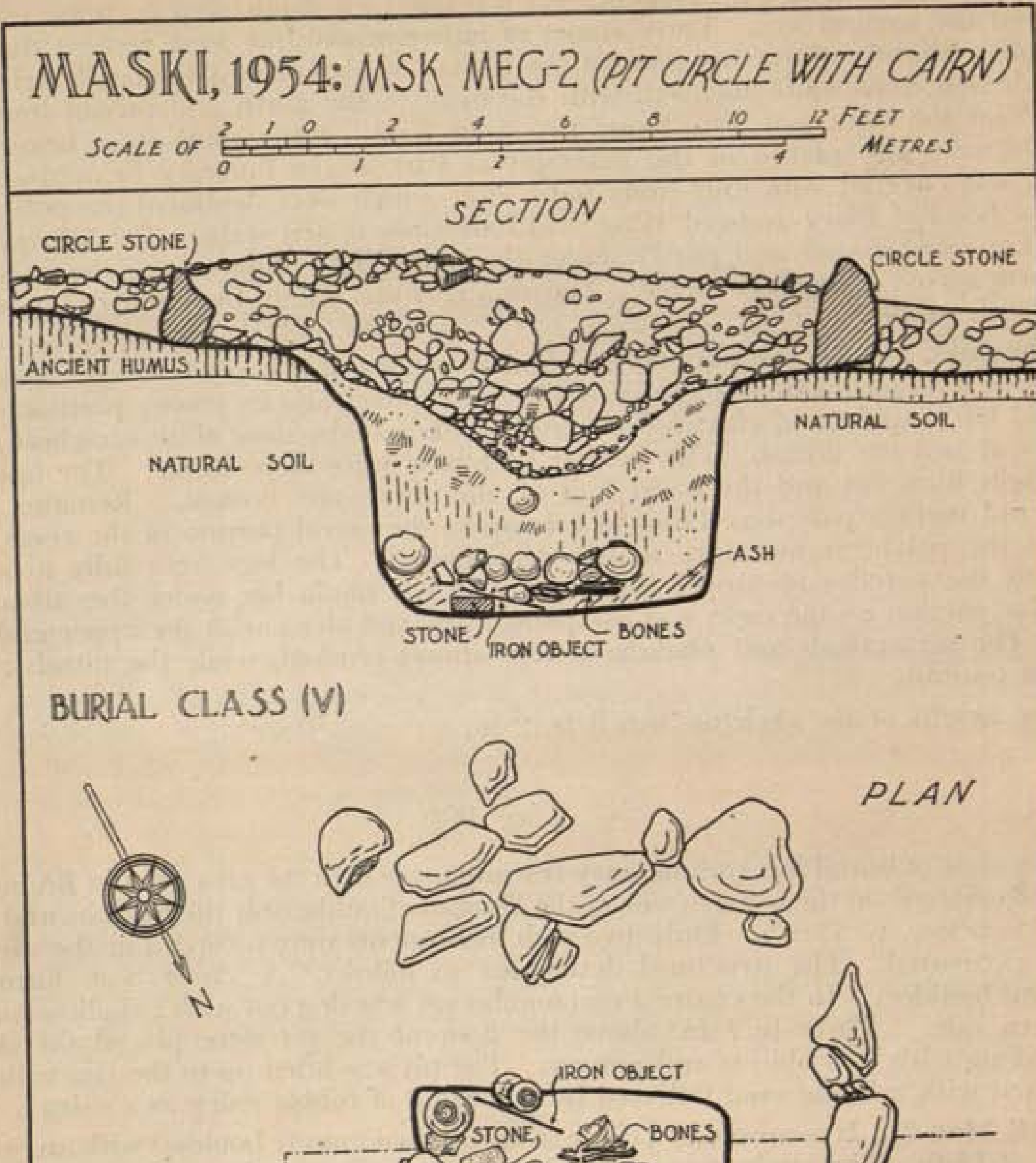

MASKI, 1954: MSK MEG-2 (PIT CIRCLE WITH CAIRN)
SCALE OF
2 1 0 2 4 6 8 10 12 FEET
0 1 2 4 METRES
SECTION
CIRCLE STONE
CIRCLE STONE
ANCIENT HUMUS
NATURAL SOIL
NATURAL SOIL
ASH
STONE
IRON OBJECT
BONES
BURIAL CLASS (V)
PLAN
N
IRON OBJECT
STONE
BONES
SECTION LINE

Fig. 7



A. *Cutting MSK-10: section across pit 30, burial-class B(iv), during excavation. The dark band at the bottom represents the natural soil, while remaining strata cut by the pit relates to the chalcolithic culture. See pages 32-33*

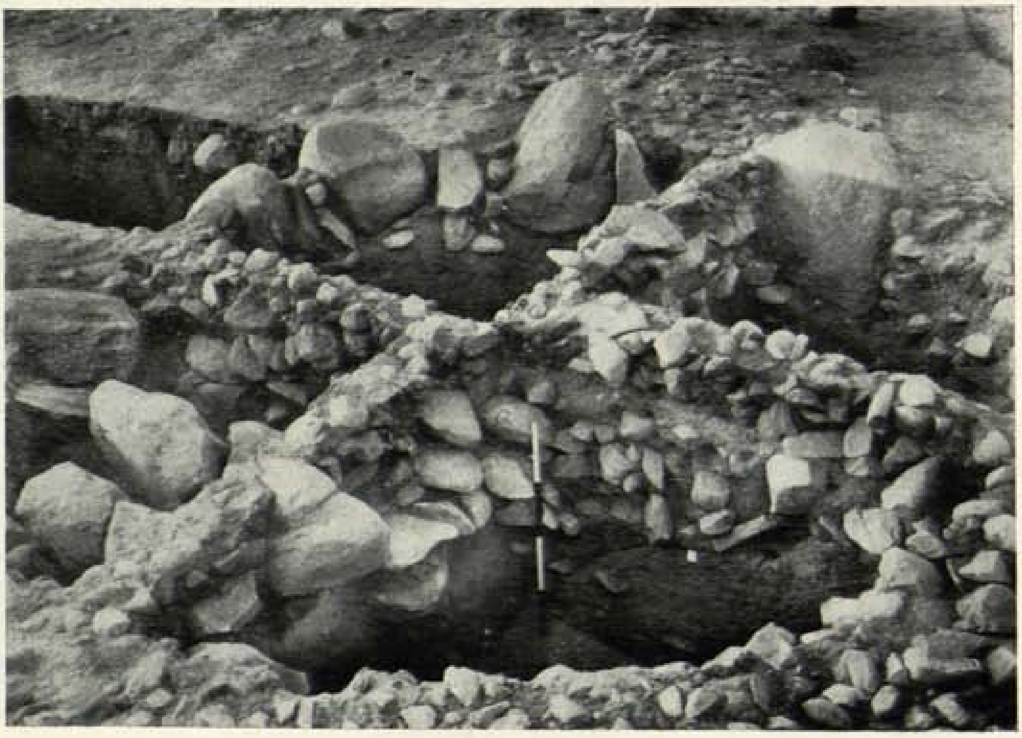


B. *Cutting MSK-10: pit 30, burial-class B(iv); pit-floor showing an extended skeleton of a child accompanied by the stone balls. See page 33*

To face plate XIV



A. *MSK Meg-2 before excavation.* *See page 33*



B. *MSK Meg-2, burial-class B(v), during excavation.* *See page 33*



A. *MSK Meg-2, burial-class B(v); pit-floor showing skeletal remains and pottery. The white patch in the centre represents ash.* *See page 33*



B. *Cutting MSK-9: section across pit 1, burial-class B(iii).* *See page 32*

To face plate XVI



A. *MSK Meg-1, menhir, before excavation.* *See page 35*



B. *MSK Meg-1, menhir, during excavation.* *See page 35*



A. *MSK Meg-1, menhir, after excavation.* *See page 35*



B. *MSK Meg-3, part of a rough alignment, during excavation.* *See page 37*

To face plate XVIII



A. *MSK CV-1, rock-shelter. See page 26*



B. *Terracotta cylinder-seal from Maski 1935-37. $\frac{1}{1}$. See pages 9 and 21*



A. *Double-pot from Jorwe.* (*Scale of inches*). *See page 21*



B. *Double-pot from Kot Diji, Khairpur State, Sind.* $\frac{1}{1}$. *See page 21* (*Courtesy: Prince of Wales Museum, Bombay*)

B. Menhirs (pls. XV and XVI)

It is customary to classify the menhir as a megalithic monument, although it is largely unassociated with any sepulchral rite. Essentially it is a commemorative stone as suggested by its name *nadu-kal* in Tamil Śaṅgam literature.[1] It is mentioned in the ancient Tamil grammar *Tolkāppiyam* (*por* 60) as a stone commemorating a deceased warrior. Similar references are found in other Śaṅgam works, viz. the *Ahanānūru* (verse 35), *Pattuppāṭṭu* series—*Malaipaḍukaḍām* (lines 384-98) and *Paṭṭinappālai* (lines 78-79). The last one describes the menhir (*naḍu-kal*) as surrounded by a fence of plaited leaves or shields along with spears.

Menhirs are found all over the Peninsula in close vicinity of other megalithic monuments, the principal regions of their occurrence being the former States of Travancore, Cochin and Hyderabad. Sometimes they are found spaced at carefully regulated distances in 'alignments', diagonal or square, indicating 'avenues'. They are almost invariably of granite or gneiss. It is significant that even in a laterite zone in Kerala, the rock-material of the menhirs is granite.[2]

So far, such monoliths have been excavated at Devikulom in the former Travancore State,[3] and Piklihal in the Raichur District in the former Hyderabad State.[4] At the former site, beneath a menhir, a burial-urn containing four pots and an iron axe were found, thus confirming the funerary nature of the monument. It is also reported 'that excavations at other menhirs revealed more or less the same results'. At Piklihal the menhir was found to be erected in a pit of about 18 in. in depth, below which nothing was found. Excavation of a 10-ft. square around the menhir yielded only a sherd of Black-and-red Ware in one of the depressions associated with the building level of the menhir.

At Maski a number of roughly aligned menhirs[5] occur on the western side of the Durgada Gudda in close vicinity of the pit-circles. Two of them were taken up for excavation, which revealed that the menhir was raised on the existing ground itself without any pit and was propped up all round by a ring of rubble packing. No sepulchral association was observed. The individual details are as follows.

MSK Meg-1.—The menhir consisted of an undressed granite monolith, 10 ft. high and roughly 5 ft. in diameter at the base but tapering towards the top (fig. 8; pls. XV and XVI A). It rested directly on the original ground-level and was surrounded at the base with a mass of rubble extending to a width of 2 ft. and rising to a height of 3 ft. 6 in. With the passage of time, this packing, which originally obviated the necessity for a pit, got covered up, leaving a free-standing monolith (pl. XV A). Within the excavated area, divided into four quadrants of 6½ ft. each, no burial was encountered. An extension of the area, towards a fallen menhir 30 ft. towards the east, also did not yield any fruitful results. Superficial pottery-pits containing broken sherds of Black-and-red Ware and other wares were, however, recorded. From the ploughed-up soil within about a few inches of the present surface was found a polished stone axe (fig. 33, *3*; pl. XXV B, *3*), which may be considered essentially as a surface-find.

[1] Information regarding references in the Tamil literature has been very kindly supplied by Shri K. R. Srinivasan.

[2] V. D. Krishnaswami, 'Megalithic types of south India', *Ancient India*, no. 5, p. 39.

[3] L. A. Krishna Iyer, 'The prehistoric archaeology of Kerala', *The Modern Review* (March 1946), p. 186.

[4] F. R. Allchin, 'The stone alignments of southern Hyderabad', *Man*, LVI, no. 150 (Oct. 1956), pp. 133-36.

[5] *Ibid.*, p. 135.

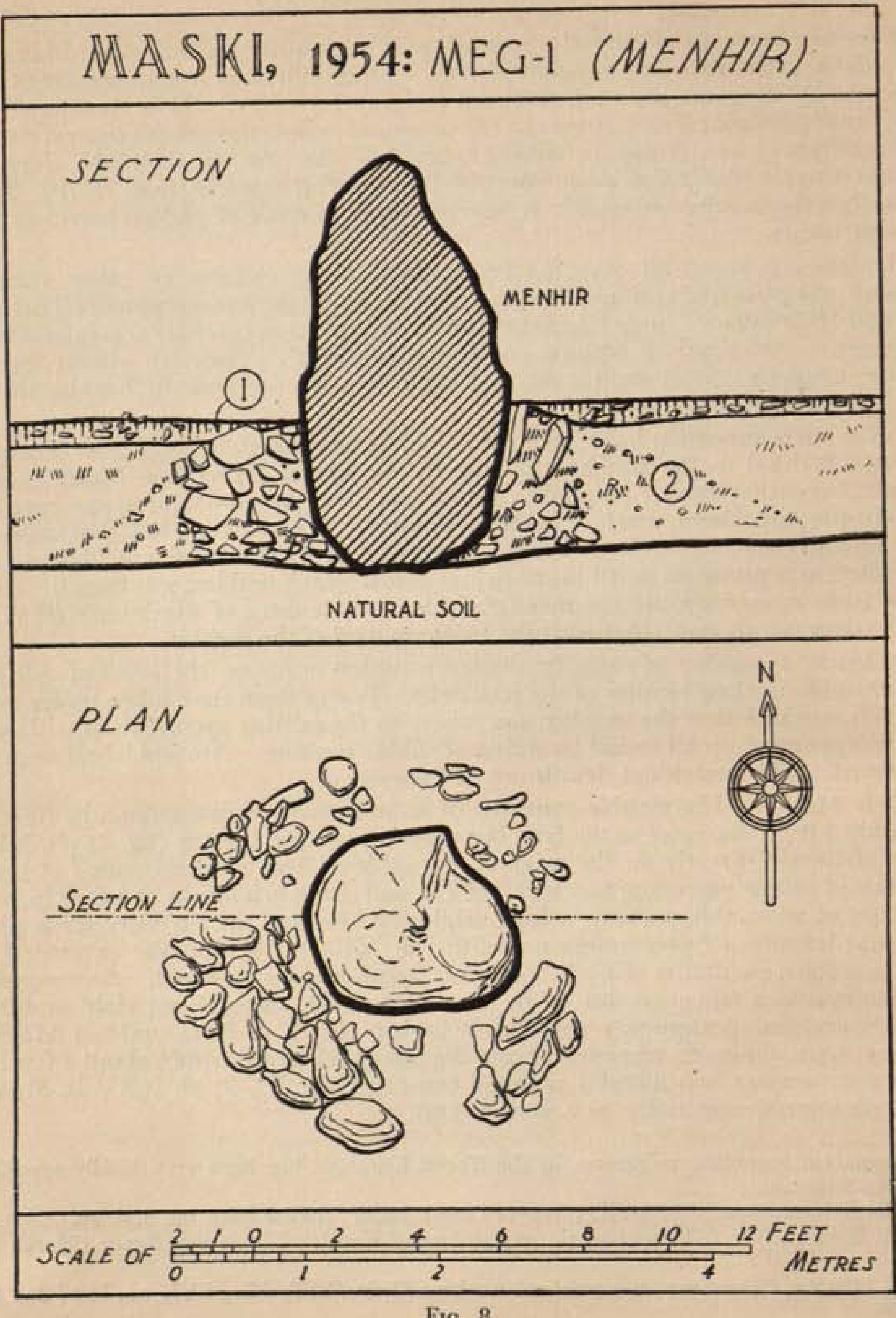

MASKI, 1954: MEG-1 (MENHIR)
SECTION
MENHIR
1
2
NATURAL SOIL
PLAN
N
SECTION LINE
SCALE OF
2 1 0 2 4 6 8 10 12 FEET
0 1 2 4
METRES

FIG. 8

MSK MEG-3.—To confirm the above evidence, another menhir lying in an alignment was excavated (pl. XVI B). It consisted of an undressed granite block, 5 ft. high and 3 ft. in diameter at the base. On excavation, it was found likewise propped up all round by a rubble packing to a height of 1 ft. 3 in. from the base. The excavated area was extended to include three more menhirs in the alignment in order to find out whether any burial was intended in between the two. In the extended area, which measured approximately 28 by 28 ft. and included four menhirs, no burial was, however, recorded. The menhirs, on the other hand, showed identical structural features. A polished stone axe (fig. 33, *2*; pl. XXV B, *2*) and a chert core (fig. 32, *42*; pl. XXV A, *42*), lying in the ploughed soil, were obtained also from this area.

8. THE POTTERY

A. INTRODUCTORY

The pottery-sequence of Maski closely resembles that of Brahmagiri[1] and likewise reveals three typical groups, each distinct in character, form and fabric. Excepting a few hand-made specimens (below, p. 40) the entire range of the pottery is turned on wheel. The characteristic features of each group is dealt with (below, pp. 38-86) in a chronological order. Here, their essentials or general trends are outlined.

The earliest group is characterized mainly by two industries: (a) dull grey ware, sometimes also mottled, with coarse gritty fabric and (b) pinkish buff-slipped ware of similar fabric as above. Examples of unslipped ware with mat surface and dull colour are also present. Most of the ware has a thick section. Noteworthy of this group, however, is the painted pottery found only in the lowest levels (below, pp. 38-40). The ware is thin in section and micaceous in fabric and is treated with a red slip. The designs, in faint black or chocolate, follow linear patterns.

In the next group, the megalithic pottery features very prominently. The wares of this class, both Black-and-red and all-black, are quite well-defined and hardly need any detailed mention here. The megalithic pottery from the excavated burials has been dealt with separately (below, pp. 50-63) to draw out a parallelism between the pottery from burials and habitational deposits of the same Period. The associated industry is formed by the common vase and lid-forms in red-slipped ware.

The last group, which also overlapped the preceding one, is distinguished by the presence of the 'Russet-coated Painted Ware' (below, pp. 72-76) ascribable to *circa* first to third centuries A.D. The individual details of this pottery as also its distribution are already fully described in a previous issue of *Ancient India*[2] and may not, therefore, be repeated here. The Ware, however, is not very prolific at Maski as at other typical 'Andhra' sites, viz. Chandravalli, Kondapur, etc. and is confined only to 2 ft. thick strata. The other industries in the group include a red-slipped ware mainly of medium to coarse fabric and a chocolate-slipped ware of medium fabric. A dull red ware and a darkish grey ware, sometimes unslipped, are also found, but their occurrence is restricted to dish- and lid-forms only.

There is yet another group of pottery, but that is ascribable to the Medieval Period. It is characterized by its grey burnished surface and predilection for grooves on the

[1] *Ancient India*, no. 4, *op. cit.*, p. 222 ff.
[2] *Ibid.*, pp. 236-39, 278-80 and 308-10.

shoulder and stamped patterns. Although of not much archaeological significance, a few representative types of this ware are illustrated (fig. 28; pl. XXII) to give an idea of ceramic art during the Medieval Period.

B. Period I

(i) *The painted ware*

The earliest levels of Maski, mostly comprising pits dug into the natural soil, yielded, among other things, occasional sherds of painted ware. From the cuttings a total of only twentyseven such sherds was recovered. The ware is thin in section and coarse in texture and is apparently wheel-made. The paste seems to have been prepared out of a micaceous clay which may have been derived from the decomposition of shale or gneiss containing large quantities of mica. The proportion of the mica-contents in some cases is so marked that the sherds show a tendency to cleave along the planes of the mica flakes and are very absorbent. They readily yield to the pressure of fingers and as a rule seem to have been fired at a low temperature, just enough to achieve the necessary coherence. Sherds containing relatively less amount of mica are, however, stronger and more compact. The ware is dressed with a red ochreous slip, over which the painted designs are trailed by applying manganiferous haematite as evidenced by the presence of iron as well as manganese in the pigment-content. No vitreous matter is noticed on the surface of the pots, which, therefore, do not seem to have been subjected to any glazing.[1] Besides Brahmagiri and Sanganakallu, similar pottery has also been recovered from Kallur.[2] It may be recalled here that the red-slipped painted pottery of the corresponding Period at Brahmagiri was salt-glazed, and the pigment, being ochre in that case, was applied after firing.[3]

The sherds listed below are too fragmentary to demonstrate any shape or the range of pattern but merely illustrate the outstanding specimens from the present collection. Some of these patterns, notably those on nos. 5, 7 and 8, are parallelled at Brahmagiri.[4]

Fig 9; pl. XIX[5]

1. Sherd of pinkish buff-slipped ware with highly micaceous fabric and painted in chocolate with a linear zonal pattern. The design along with the slip has peeled off from most of the area. From a pit ascribable to the earliest level of Period I.

2. Sherd of red-slipped ware with medium micaceous fabric and painted in black with grouped vertical lines below a thicker horizontal band. From a pit ascribable to the earliest level of Period I.

3. Sherd of (faded) red-slipped ware with medium micaceous fabric and painted in black with grouped oblique lines. From the same horizon as above.

4. Rim-fragment of a vase of pinkish red-slipped ware with medium micaceous fabric and painted in black with grouped vertical lines below a thick horizontal rim-band. From an early level of Period I.

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[1] Chemist's note.

[2] *An. Rep. Arch. Dept. H.E.H. the Nizam's Dominions for the year 1938-39*, pp. 23-27 and 31-32 and author's own collection.

[3] *Ancient India*, no. 4, *op. cit.*, p. 222.

[4] *Ibid.*, p. 225, fig. 18.

[5] Nos. 11 and 12 are not illustrated on pl. XIX.

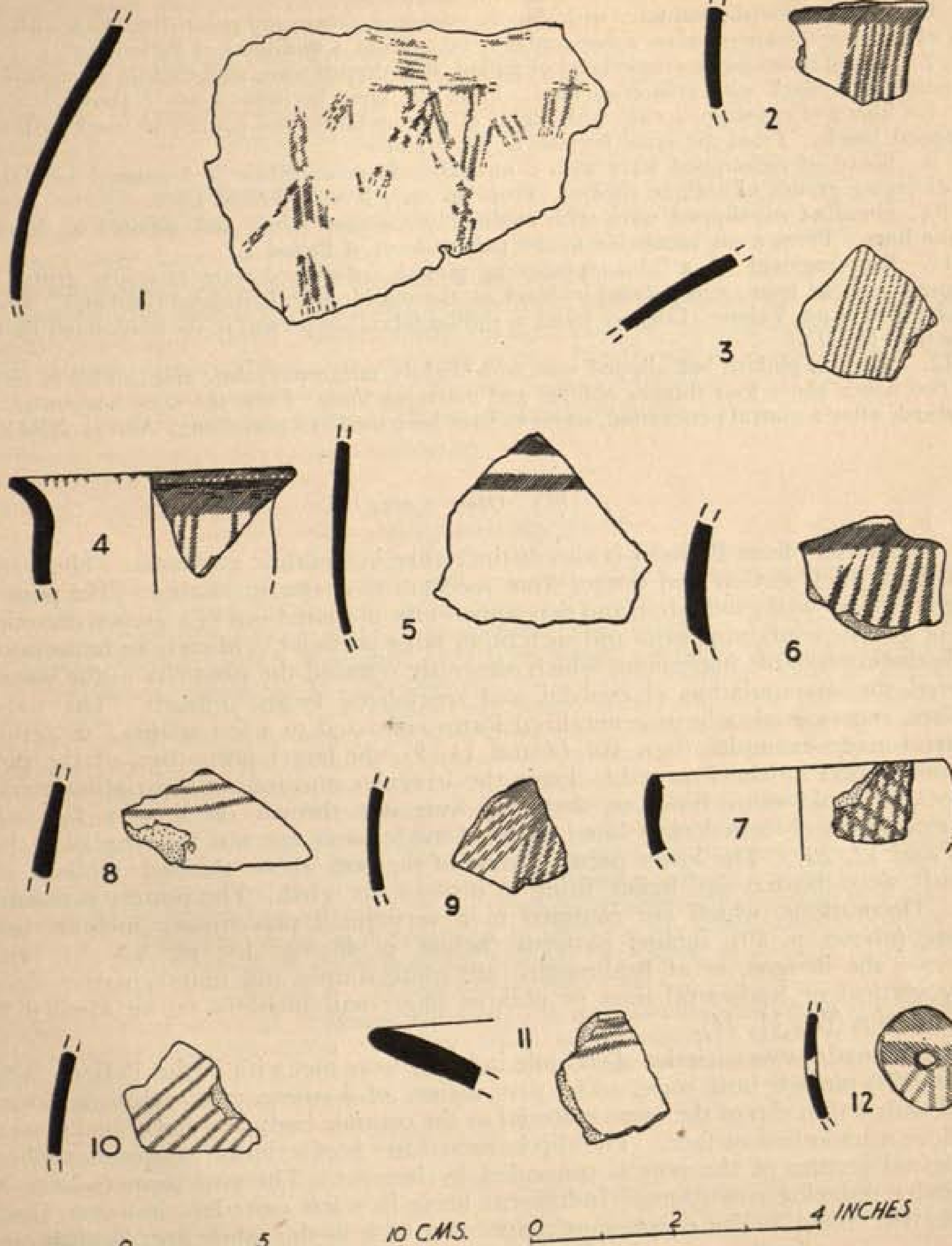


FIG. 9. *Pottery from Period I : painted ware*

5. Sherd of red-slipped ware with medium micaceous fabric and painted in black with horizontal bands. From the same horizon as nos. 2 and 3 above.

6. Sherd of red-slipped ware with slightly micaceous fabric and painted in black with vertical lines of varying thickness below a horizontal band. From a mid-level of Period I.

7. Rim-fragment of a simple bowl of pinkish buff-slipped ware with slightly micaceous fabric and painted in black with criss-cross lines. From the same horizon as no. 1 above.

8. Sherd of red-slipped ware with highly micaceous fabric and painted in black with roughly horizontal bands. From the same horizon as no. 5 above.

9. Sherd of red-slipped ware with a medium micaceous fabric and painted in black with two diverging groups of oblique strokes. From an early level of Period I.

10. Sherd of red-slipped ware with medium micaceous fabric and painted in black with oblique lines. From a pit ascribable to the earliest level of Period I.

11. Rim-fragment of a lid-*cum*-platter of pinkish red-slipped ware of coarse gritty fabric, seemingly without mica, and painted in black on the outside with horizontal rim-band. From the same horizon as no. 5 above. Cognate forms in similar fabric are present in the plain series illustrated below (fig. 11, *11*).

12. Sherd of pinkish buff-slipped ware with slightly micaceous fabric and painted in chocolate with two bands above four thinner oblique and diverging lines. From the same horizon as above. The sherd, after a central perforation, seems to have been used as a play-thing. Also pl. XXIX A, *9*.

(ii) *Other wares*

The pottery from Period I is also distinct alike in its fabric and form. The ware has normally a thick section and ranges from medium to coarse in texture. The paste does not seem to be well-graduated and was apparently prepared out of a clayey decomposed shale or granite containing grits and such other large particles. Mica is an important and readily-distinguishable ingredient, which obviously reduced the plasticity of the paste and rendered the manipulation of evolved and specialized forms difficult. The ware is, therefore, represented only in generalized forms restricted to a few shapes. Excepting a few hand-made examples (figs. 10, *1d* and 11, *9*), the larger proportion of the pottery from this Period is wheel-turned.[1] From the irregular and indistinct striation-marks on the pots, it would seem, however, that they were not thrown on a very fast wheel. Instances of wheel-turned rims luted to hand-made vases are not wanting (figs. 10, *2e* and *4* and 12, *20*). The lower parts of some of the pots show thinned sections which evidently were 'beaten out' before firing to increase the girth. The pottery is essentially plain. Decorations, which are confined to a very small percentage, include, besides painting (above, p. 39), incised patterns (below, p. 48; fig. 13; pl. XX A). In the latter case the designs, as at Brahmagiri, are quite simple and unimaginative showing merely vertical or horizontal lines or oblique finger-nail incisions on an applied band below the rim (fig. 11, *14*).

In the main, two varieties of ceramic industry were met with in this Period: (a) grey ware and (b) pinkish buff ware. The first variety of a coarse gritty fabric is normally treated with a thin slip of the same material as the ceramic body and burnished thereafter to achieve a smoothed surface. The slip in some cases is of a thicker consistency whereby the original texture of the pots is concealed by its coat. The pots seem to have been fired under reducing conditions. Indifferent firing in a few cases has, however, resulted in a mottled colour. The commonest shapes met with in this fabric are: (a) dish-*cum*-lid

[1] It is significant to note that the pottery of the comparable Periods both at Brahmagiri and Sanganakallu is all hand-made. Cf. *Ancient India*, no. 4, *op. cit.*, p. 222; Subbarao, *op. cit.* (1948), pp. 13-20.

(fig. 11, *8* and *11*); (b) lid with central knob (fig. 11, *16* and *16a*); (c) vase with flared rim (fig. 12, *22*); and (d) bowl with footed ring-base (fig. 12, *34*). The fabric of the second variety is also coarse and gritty, sometimes with a larger proportion of mica. The pots are treated with a pinkish buff slip and, though fired under oxidizing conditions of the kiln, have in many cases burnt black in the mid-portion of the sections. Although coeval with the first, a greater frequency of this variety is noticed in the lower levels. The outstanding type is the trough with a splayed out or out-turned or everted rim (fig. 10). Besides, some of the types (figs. 10, *2b* and *3*, 11, *7* and *12a* and 12, *20*) occur both in the grey and the pinkish buff ware, indicating a common integral culture. Stray cases of a finer fabric showing a little deeper slip also exist (fig. 12, *27-29*).

Up-to-date three other sites have yielded the same class of pottery with an identical cultural equipment: Brahmagiri,[1] Sanganakallu[2] and Kallur.[3] At the first two sites the ware with pinkish buff slip is not well-represented, the predominant ware being the one with coarse grey fabric. Significantly enough, two of the outstanding types in the burnished grey ware at Maski, viz., the vase with a flared rim (fig. 12, *22*) and a shallow dish (fig. 11, *11*) are parallelled at Jorwe and Nasik.[4] This in itself affords a cogent link between the chalcolithic cultures of two different regions.

The following is a list of selected sherds.

(i) *Plain pottery* (figs. 10-12)

Type 1. Basin or trough of pinkish dull red ware with a splayed out featureless rim, a sharply carinated neck and thinning cylindrical sides. Of coarse fabric, which has burnt black in the section, it is treated externally with a drab-coloured slip. From the earliest level of Period I. Some examples in this type are unslipped. The type, along with its variants, forms the principal type of the Period. *Variant 1a*, of drab-coloured ware, differs from the above in having a less pronounced carinated neck and convex sides. Of coarse fabric, which has burnt black in the section, it is treated externally with a thin drab-coloured slip, of which finger-sweepings are quite marked on the surface. From the same level as above. *Variant 1b*, a bowl of drab-coloured ware, differs from the above in having a less pronounced splayed out rim. Of medium fabric, which has burnt black in the section, it is treated externally with a thin slip, which shows sweepings as in the previous variant. The wheel-turned rim-portion seems to have been luted to the hand-modelled body. From the earliest level of Period I. Analogies come from Sanganakallu.[5] *Variant 1c*, of pinkish buff ware, differs from the above in having a little thicker rim with a weak rib on the outside. Of the same fabric as above, it is burnished and treated externally with a pinkish buff slip. From an early level of Period I. Some of the examples in this form are also unslipped. *Variant 1d*, of drab-coloured ware, is completely hand-modelled. Of the same fabric as above, it is devoid of any slip or wash and is very crudely made. From a mid-level of Period I.

Type 2. Basin or trough of pinkish red ware with an out-turned featureless rim, a carinated neck and roughly cylindrical sides. Of coarse fabric, which has burnt black in the section, it is burnished and treated externally with a thin red slip. From a mid-level of Period I. Rough analogies in a diminutive size come from Brahmagiri.[6] *Variant 2a*, of grey ware and of a diminutive

[1] *Ancient India*, no. 4, *op. cit.*, pp. 222-32.

[2] Subbarao, *op. cit.* (1948), pp. 12-20.

[3] *An. Rep. Arch. Dept. H.E.H. the Nizam's Dominions for the year 1938-39*, pp. 23-27 and 31-32. The published report of the excavation is unfortunately very sketchy. The comparative study of the pottery is based on the author's own collection from the site.

[4] Sankalia and Deo, *op. cit.*, p. 45, figs. 3, *a* and 4, *e*.

[5] Subbarao, *op. cit.* (1948), p. 14, pl. VI, *XIIa*.

[6] *Ancient India*, no. 4, *op. cit.*, p. 231, fig. 23, *T69*.

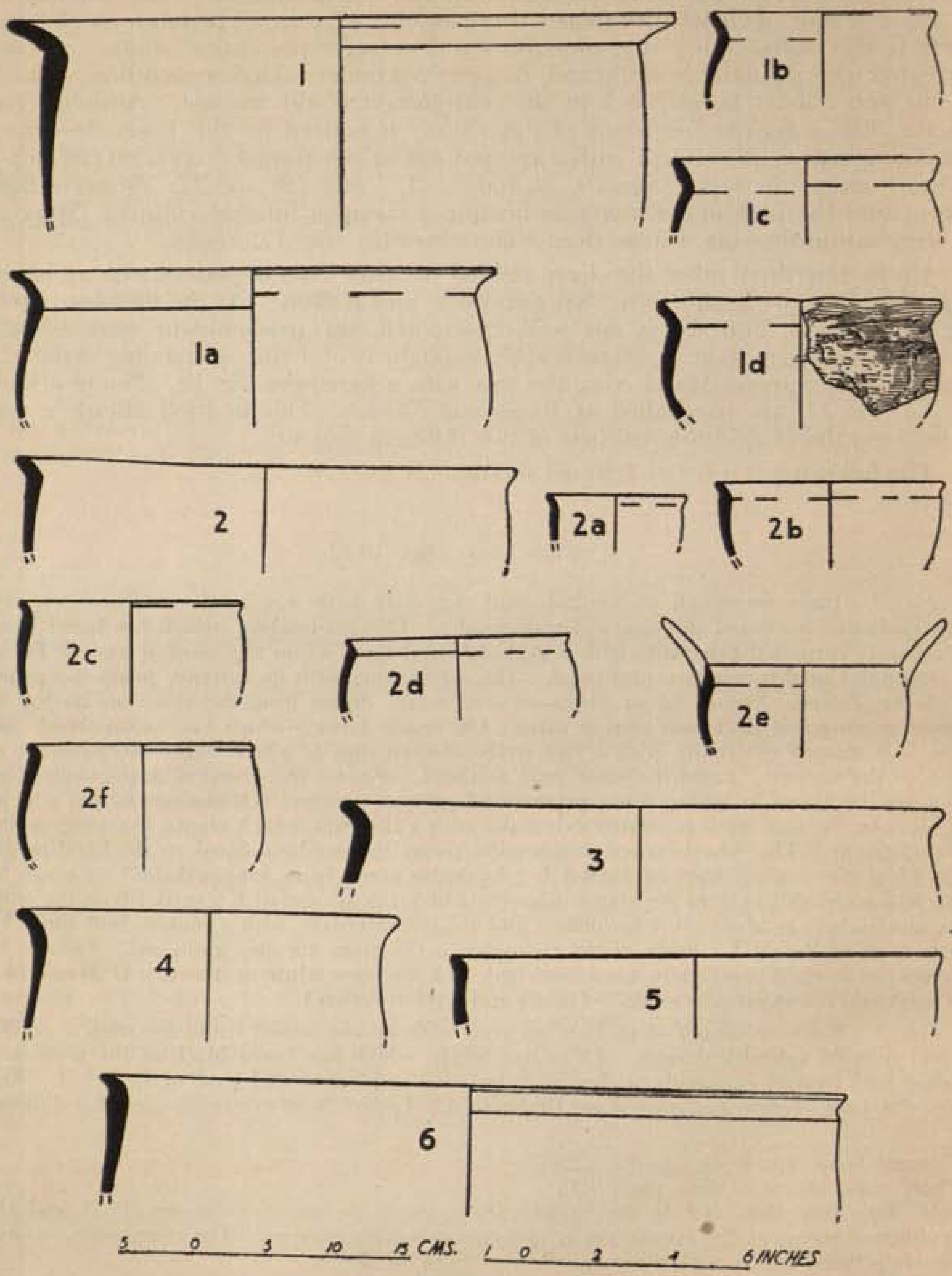


FIG. 10. *Pottery from Period I : plain pottery*

size, differs from the above in having an everted rim. Of medium fabric, it is burnished and treated externally with a grey slip. From a mid-level of Period I. *Variant 2b*, of grey ware, differs from the main type in being weakly carinated at the neck. Of medium fabric, it is burnished and treated externally with a slip. From an early level of Period I. *Variant 2c*, of pinkish buff ware, differs from the above in having a featureless and less emphatic rim, essentially everted, and deeper sides. Of medium fabric, which has burnt black in the section, it is burnished and treated externally with a pinkish buff slip. As a result of indifferent firing the surface has become mottled. From a mid-level of Period I. *Variant 2d*, of pinkish buff ware, differs from the above in having a sharpened rim and convex sides. Of the same fabric as above, it is treated externally with a thin slip. From a pit ascribable to the earliest level of Period I. *Variant 2e*, of pinkish buff ware, differs from the above in having a vertical sharpened rim with lug-handles. It is partly hand-made. Of medium fabric, which has burnt black in the section, it is treated externally with a thin pinkish slip. From a pit ascribable to the earliest level of Period I. Bowls with lug-handles on the sides instead of on the rim-top, as in the present case, were recovered from Sanganakallu.[1] *Variant 2f*, of pinkish buff ware, differs from the main type in having a little thickened essentially featureless rim, convex sides and a low girth. Of coarse fabric, which has burnt black in the section, it is burnished and treated externally with a pinkish buff slip. From a mid-level of Period I.

Type 3. Basin or trough of grey ware with an out-turned featureless rim, a concave neck and expanding sides. Of coarse fabric, it is burnished and treated externally with a creamish-grey slip. From a late level of Period I. Roughly similar forms occur in pinkish buff ware as well.

Type 4. Vase of pinkish buff ware with an out-curved featureless rim, thickened at the neck, and roughly cylindrical sides. Of medium fabric, which has burnt partly black in the section, it is burnished and treated externally with a pinkish buff slip. The wheel-turned rim-portion seems to be luted to the hand-modelled body. From the same level as above.

Type 5. Vase of grey ware with a slightly everted featureless rim. Of coarse fabirc, it is devoid of any slip or wash. From a mid-level of Period I.

Type 6. Vase of pinkish buff ware, with an everted rim, distinguished by a little ledge at the neck and roughly cylindrical sides. Of coarse fabric, which has burnt black in the section, it is burnished and treated externally with a pinkish buff slip. From an early level of Period I.

Type 7. Deep bowl of pinkish buff ware with a slightly closing featureless rim. Of coarse fabric, which has burnt greyish black in the section, it is burnished and treated externally with a pinkish buff slip. From a mid-level of Period I. Rough analogies come from Brahmagiri.[2] *Variant 7a* differs from the above in having a vertical rim and progressively thinning cylindrical sides. Of the same fabric, it is burnished and treated externally with a pinkish buff slip. From an early level of Period I. *Variant 7b*, of grey ware, differs from the above in having a slight depression below the rim and uniformly thick sides. Of coarse fabric, it is burnished and treated externally with a thin slip. From a mid-level of Period I.

Type 8. Shallow bowl of grey ware with a featureless rim and thinning sides. Of coarse fabric, it is burnished and treated both externally and internally with a thin grey slip. From a mid-level of Period I. Analogies come from Brahmagiri.[3] *Variant 8a*, of grey ware, differs from the above in having an internally bevelled rim. Of medium fabric, it is burnished and treated externally with a creamy grey slip. From a late level of Period I. *Variant 8b*, of grey ware, differs from the above in having a vertical rim. Of medium fabric, it is burnished and treated both externally and internally with a thin grey slip. From a mid-level of Period I. Analogies come from Brahmagiri.[4] *Variant 8c*, of grey ware, differs from the main type in having a little splayed out rim. Of coarse fabric, it is burnished and treated both externally and internally with a grey slip. From a pit ascribable to a late level of Period I. It may as well be the splayed out or flared rim of an urn (cf. type 22 below).

[1] Subbarao, *op. cit.* (1948), p. 17, pl. VIII, *XVc* and *XVd*.
[2] *Ancient India*, no. 4, *op. cit.*, p. 230, fig. 22, *T57*.
[3] *Ibid.*, p. 226, fig. 19, *T31* or *T33*.
[4] *Ibid.*, p. 230, fig. 22, *T63*.

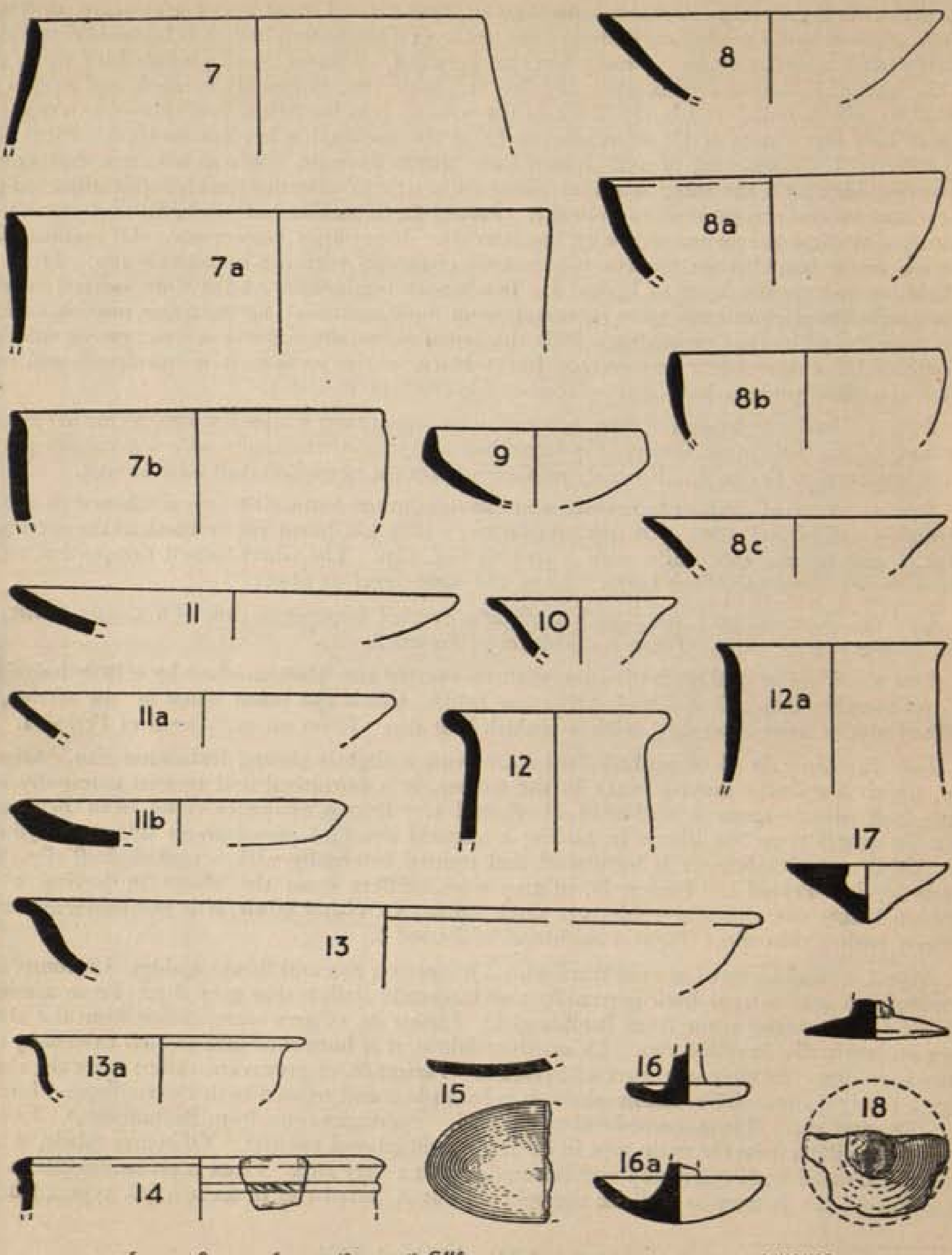


FIG. 11. *Pottery from Period I: plain pottery*

Type 9. Bowl of pinkish buff ware with a short vertical sharpened rim and a convex thinning base. Of coarse fabric, it is entirely hand-made and treated externally with a pinkish buff slip. From a mid-level of Period I.

Type 10. Bowl of red ware with an out-curved rim. Of coarse fabric, which has burnt partly black in the section, it is burnished and treated both externally and internally with a tan red slip. From a mid-level of Period I.

Type 11. Shallow dish of grey ware with a featureless rim. Of coarse fabric, it is burnished and treated both externally and internally with a slip which has burnt darkish grey inside and black and tan brown outside with black confined to the top. From a pit ascribable to a late level of Period I. Analogies come from Nasik.[1] *Variant 11a*, of red ware, differs from the above in having a short pointed rim. Of medium fabric, it is burnished and treated both externally and internally with a slip which has burnt black inside and red outside. From a late level of Period I. *Variant 11b*, of red ware, differs from the main type in having an externally bevelled thick rim and a flat base. Of coarse fabric, which has burnt black in the section, it is treated with a red slip on the inside only. The underside of the base is very coarse; the dish may therefore have been used as a baking pan. From a late level of Period I.

Type 12. Vase of reddish buff ware with an out-turned externally thickened rim and a vertical neck. Of coarse fabric, which has burnt black in the section, it is burnished and treated externally with a reddish buff slip. From a pit ascribable to the earliest level of Period I. *Variant 12a*, of grey ware, differs from the above in having an everted sharpened rim. Of coarse fabric, it is burnished and treated externally with a creamy greyish slip. From a late level of Period I.

Type 13. Basin or trough of grey ware with an out-turned featureless rim. Of coarse fabric, it is burnished and treated both externally and internally with a grey slip. From a late level of Period I. *Variant 13a*, of red ware, differs from the above in having a horizontally splayed out sharpened rim and a weakly carinated waist. Of fine fabric, which has burnt greyish black in the section, it is burnished and treated both externally and internally with a tan red slip. From an early level of Period I.

Type 14. Fragment of a vase of red ware with a vertical thickened and internally undercut rim and distinguished by an applied band with finger-nail incision. Of coarse fabric, which has burnt black in the section, it is treated both externally and internally with a thin red slip. From a mid-level of Period I.

Type 15. Oval-shaped fragment of grey ware of indeterminate use. Of coarse fabric, it is burnished on the underside and is devoid of any slip or wash. The inside does not show any usage. From a pit ascribable to the earliest level of Period I. The type is common at Maski but is not found at Brahmagiri or Sanganakallu.

Type 16. Lid of grey ware with a featureless rim, an almost flat base and a central (incomplete) knob for lifting. Of coarse fabric, it is treated internally with a grey slip. From a mid-level of Period I. *Variant 16a* differs from the above in being a little deeper. Of coarse fabric, it is treated internally with a thin grey slip, leaving the underside rough and coarse. Indifferent firing has resulted in a mottled surface. From a mid-level of Period I. Analogies come from Sanganakallu.[2]

Type 17. Lid of grey ware with a solid section excepting a central cup-shaped depression. Of medium fabric, it is burnished and treated both externally and internally with a thin grey slip. Indifferent firing has resulted in a mottled surface. From a late level of Period I.

Type 18. Lid of dull red ware with a solid section, a sharpened rim-base and an incomplete knob. Of medium fabric, it is devoid of any slip or wash. From a mid-level of Period I.

[1] Sankalia and Deo, *op. cit.*, p. 45, fig. 4, *e*.
[2] Subbarao, *op. cit.* (1948), p. 16 and pl. VII, *VIII*.

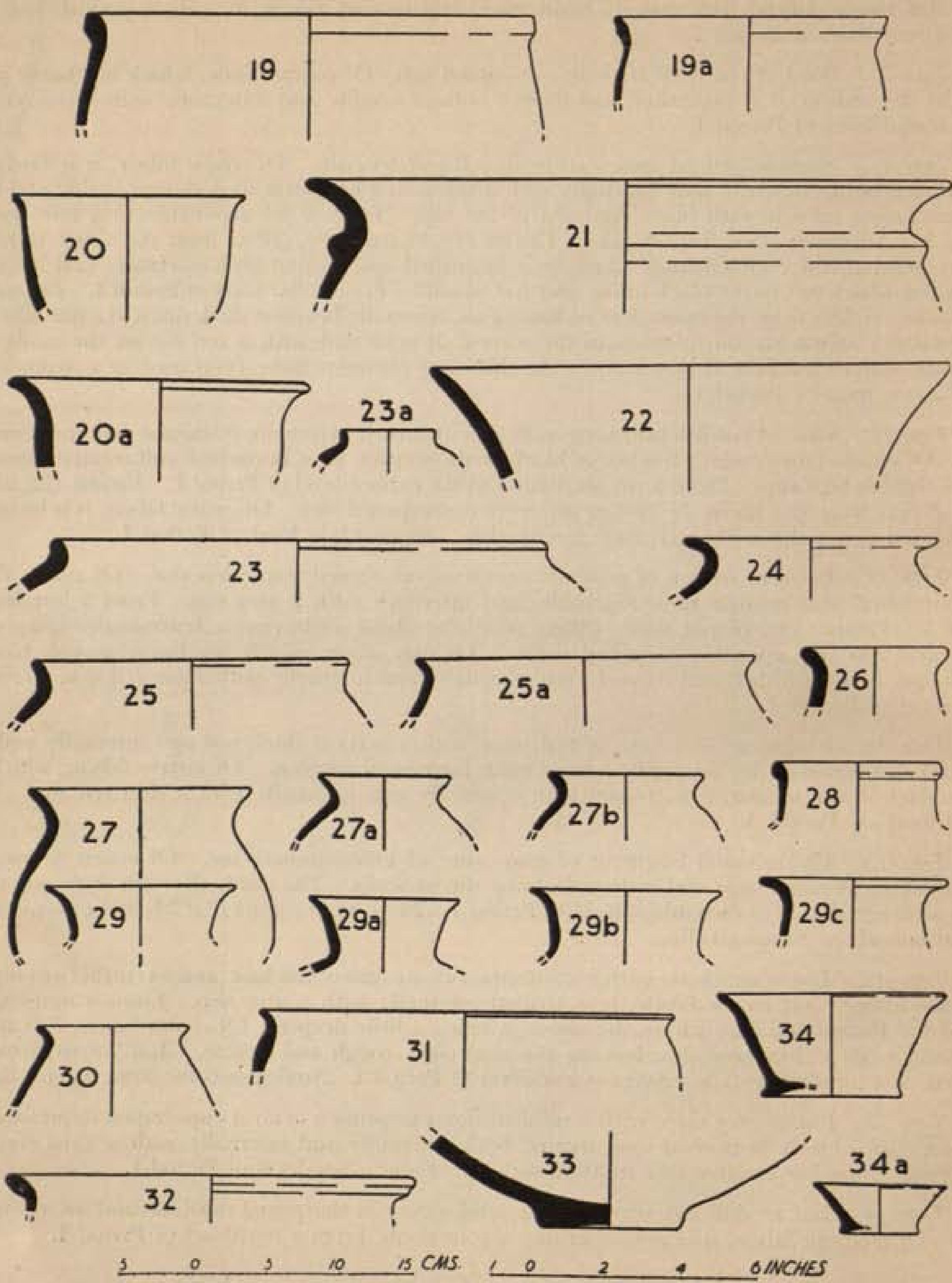


FIG. 12. *Pottery from Period I: plain pottery*

Type 19. Basin of pinkish buff ware with a vertical externally elliptical collared rim and expanding sides. Of medium fabric, which has burnt greyish black in the section, it is burnished and treated externally with a pinkish buff slip. From a late level of Period I. *Variant 19a,* of the same ware and fabric, differs from the above in having a concave thinned neck. From a late level of Period I.

Type 20. Bowl of dull red ware with an out-curved featureless rim and slightly convex sides thickening towards the base. Of medium fabric, it is partly hand-made and treated both externally and internally with a thin drab-coloured slip which has burnt tan brown outside and grey inside. Indifferent firing has resulted in a mottled surface. From a late level of Period I. *Variant 20a,* of grey ware, differs from the above in having a slightly more pronounced rim and uniformly thicker walls. Of coarse fabric, indifferently fired, it is burnished and treated both externally and internally with a grey slip. From an early level of Period I.

Type 21. Vase of pale red ware with a flared featureless rim and a bold rib below the neck. Of coarse fabric, which has burnt black in the section and is indifferently fired, it is treated both externally and internally with a pale red slip. From a pit ascribable to a late level of Period I.

Type 22. Fragment of a flared rim of grey ware. Of coarse fabric, it is burnished and treated both externally and internally with a slip. From a pit ascribable to the earliest level of Period I. It is possibly the rim-fragment of an urn comparable with Brahmagiri burial-urns of Period I.[1] Analogies also come from Sanganakallu[2], Nasik and Jorwe.[3]

Type 23. Vase with a short vertical featureless rim. Of coarse fabric, which has partly burnt black in the section, it is treated externally with a pinkish buff slip. From a mid-level of Period I. *Variant 23a,* of grey ware, is of a diminutive size and has a little more pronounced rim. Of coarse fabric, it is burnished and treated externally with a grey slip. From a pit ascribable to the earliest level of Period I.

Type 24. Vase of grey ware with a horizontally splayed out featureless rim. Of coarse fabric, it is burnished and treated externally with a black slip. From a late level of Period I.

Type 25. Vase of dull red ware with an out-turned featureless rim. Of coarse fabric, which has burnt smoky in the section, it is treated both externally and internally with a slip which has turned grey inside and dull red outside. From a late level of Period I. Rough analogies come from Sanganakallu.[4] *Variant 25a,* of pinkish buff ware, has a pronounced shorter rim and an oblique shoulder. Of coarse fabric, indifferently fired, it is treated externally with a thin dull-coloured slip. From a late level of Period I.

Type 26. Fragment of a vase of pinkish buff ware with an out-turned featureless rim. Of coarse fabric, which has partly burnt black in the section, it is treated both externally and internally with a pinkish buff slip. From a pit ascribable to the earliest level of Period I.

Type 27. Vase of grey ware with an out-turned rim and a concave neck. Of fine fabric, it is burnished and treated externally with a thin grey slip. From a mid-level of Period I. Analogies come from Brahmagiri.[5] *Variant 27a,* of grey ware, differs from the above in having a weakly carinated neck, but has the same fabric as above. From an early level of Period I. *Variant 27b,* of dull grey ware, differs from the main type in having an internally thickened rim. Of coarse fabric, it is devoid of any slip or wash. From a mid-level of Period I.

Type 28. Fragment of a vase of pink red ware with a vertical externally oval-collared rim. Of fine fabric, which has burnt black in the section, it is well-burnished and treated with a tan red slip. From a late level of Period I.

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[1] *Ancient India,* no. 4, *op. cit.,* p. 227, fig. 20, *T41.*
[2] Subbarao, *op. cit.* (1948), p. 19, pl. IX, *XIXj.*
[3] Sankalia and Deo, *op. cit.,* p. 45, fig. 3 *a* and 3 *b.*
[4] Subbarao, *op. cit.* (1948), p. 19, pl. IX, *XVIIIb.*
[5] *Ancient India,* no. 4, *op. cit.,* p. 226, fig. 19, *T27.*

Type 29. Fragment of a vase of greyish buff ware with an out-curved rim and a vertical neck. Of fine fabric, it is treated with a milky grey slip, which also shows on the outside some traces of red pigment. It is a unique specimen in this fabric. From a mid-level of Period I. *Variant 29a*, of grey ware, differs from the above in having an out-turned rim and a weakly carinated neck. Of medium fabric, it is burnished and treated both externally and internally with a thin grey slip

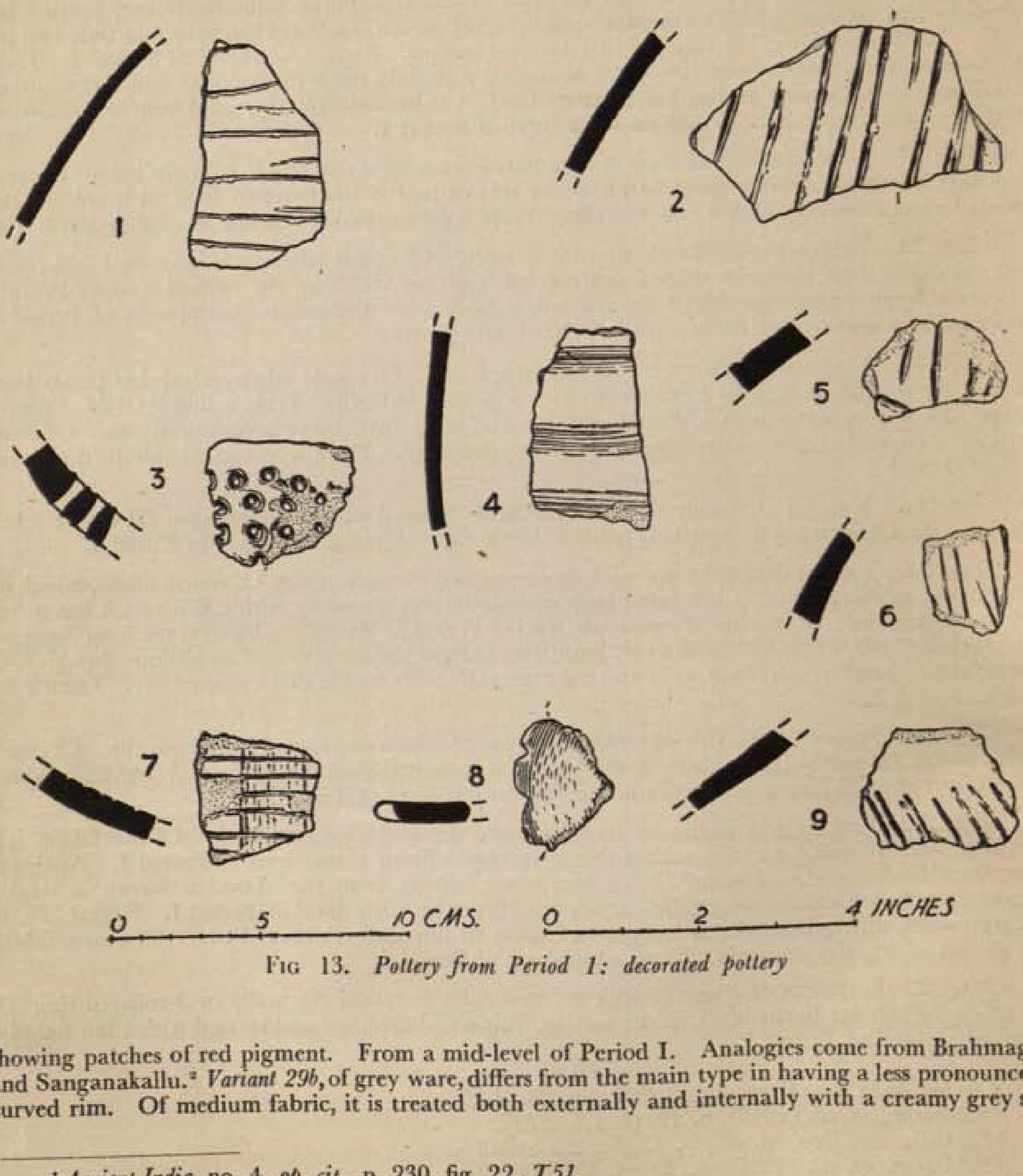


FIG 13. *Pottery from Period 1: decorated pottery*

showing patches of red pigment. From a mid-level of Period I. Analogies come from Brahmagiri[1] and Sanganakallu.[2] *Variant 29b*, of grey ware, differs from the main type in having a less pronouncedly curved rim. Of medium fabric, it is treated both externally and internally with a creamy grey slip.

[1] *Ancient India*, no. 4, *op. cit.*, p. 230, fig. 22, *T51.*
[2] Subbarao, *op. cit.* (1948), p. 19, pl. IX, *XIXd.*

From a late level of Period I. *Variant 29c*, of mottled grey ware, differs from the above in having a horizontally splayed out rim. Of coarse fabric, indifferently fired, it is burnished and treated externally with a grey slip. From a pit ascribable to a late level of Period I.

Type 30. Vase of pinkish buff ware with an out-turned featureless rim, a concave neck and an oblique shoulder. Of coarse fabric, it is treated externally with a pinkish buff slip. From a pit ascribable to the earliest level of Period I. Analogies in red ware come from Brahmagiri.[1]

Type 31. Basin of dull red ware with an out-turned rim and thickened walls. Of coarse fabric, indifferently fired, it is treated externally with a drab-coloured slip. From a late level of Period I.

Type 32. Fragment of a vase with an out-turned groove-collared rim. Of coarse fabric, which has partly burnt black in the section, it is treated externally with a pinkish buff slip. From a late level of Period I.

Type 33. Fragment of a jar of dull red ware with a solid disc-base. Of coarse fabric, it is devoid of any slip or wash. From a pit ascribable to the earliest level of Period I. Analogies come from Sanganakallu [2]

Type 34. Bowl of grey ware with an out-turned featureless rim and sides tapering to a footed base. Of coarse fabric, it is burnished and treated both externally and internally with a grey slip. From a mid-level of Period I. *Variant 34a*, of the same ware, lacks the angle of the rim in the main type. Of coarse fabric, it is treated externally with a thin grey slip. From an early level of Period I.

(ii) *Decorated pottery* (fig. 13; pl. XX A)

1. Sherd of dull grey ware, burnished and having horizontal incisions on the outside. From the earliest level of Period I.

2. Sherd of burnished dull grey ware, having bold vertical incisions on the outside. From a late level of Period I.

3. Sherd (possibly base-fragment) of mottled grey ware, presumably treated with a mere wash and perforated before firing. From a late level of Period I. Analogies come from Sanganakallu.[3]

4. Sherd of burnished dull grey ware, having grouped horizontal thin incisions on the outside. From a mid-level of Period I.

5. Sherd of burnished buff grey ware, thick in section and having bold vertical incisions on the outside. From a late level of Period I.

6. Sherd of burnished buff grey ware, thick in section but having thinner vertical incisions. From a mid-level of Period I.

7. Sherd, possibly a base-fragment, of dull grey ware, burnished and having deep horizontal incisions on the inside. From a late level of Period I.

8. Rim-fragment, possibly of a plate, of a ware with pinkish buff slip and micaceous fabric and having scalloped decoration. From the earliest level of Period I.

9. Sherd of mottled grey ware having bold oblique incisions on the outside. From a late level of Period I.

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[1] *Ancient India*, no. 4, *op. cit.*, p. 226, fig. 19, *T30.*
[2] Subbarao, *op. cit.*, (1948), p. 17, pl. VIII, *XIII.*
[3] *Ibid.*, p. 16, pl. VII, *XI.*

C. Period II

(i) *Burial-pottery*[1]

As indicated above (pp. 26-34), five classes of burials were met with in the present excavation. For the sake of convenience and easy comparative study, the pottery from each class has been illustrated separately. Barring class B(i), only one example of each class was opened. The illustrated pottery, therefore, may be considered as only reasonably representative and by no means complete of the class to which it pertains.

The whole mass of pottery from all the excavated burials shows an unmistakable identity of fabric and technique, bespeaking a common culture. The larger portion of this belongs to the well-defined class of brightly-coloured Black-and-red Ware, the outstanding features of which are the burnished[2] and polished[3] surface and the employment of the inverted firing technique. The all-black ware is conspicuous by its absence, but that may be a pure coincidence, for good many pots of this variety were recovered from the burials during the 1935-37 excavation as well as from the present excavation from the habitational deposits in Cutting MSK-10 (below, p. 63). Red ware is confined mainly to large and medium-sized vessels. With the discountable exception of large jars, the entire range of this pottery is wheel-turned and is prepared out of a sufficiently graduated paste with a fine, occasionally medium, grain, the tempering material being sand and little particles of quartz. The pottery is essentially plain in character; the only decorations met with are the cord-like finger-impressions on the rims of the large jars (fig. 16, *B*(*i*)*12* and B(*i*)*12a*).

This commonness of fabric between the pottery of each burial is only partially supported by the occurrence of cognate or near-cognate forms in the individual burial-classes. Thus, nos. 1, 2, 3, 4b, 7 and 8a from class B(i) have analogues in nos. B(iv)5, B(ii)2, B(iii)2, B(v)5, B(v)7 and B(iv)4 respectively. Besides, nos. 5, 6, 8 and 9 from class B(ii) are roughly parallelled by nos. B(iii)3, B(v)5, B(iii)1 and B(iii)5, and nos. 4 and 6 from class B(iii) are identical with nos. B(v)2 and B(v)6. It is evident that each burial-class presents some common form which links it with the other and confirms the alliedness of all the classes of burials. On the other hand, it must be noted that no single type is common to all the burials. Of the independent forms unrelated by any similarity in each class of burial, special mention may be made of a chalice with a ring of oval holes in the pedestal (fig. 14, *B*(*i*)*6*).

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[1] The illustrated pottery from the burials is prefixed with the index-letter B followed within brackets by the class number in Roman numerals. Thus B(iii) 4 means pottery-type 4 of burial-class (iii), i.e. the urn-burial.

[2] According to Rawson burnishing on Indian pottery is achieved by rubbing haematite dressing on the surface of the pot in the green hard state; he presumes that burnishing and colouring agents are the same. Cf. P. S. Rawson, 'The surface treatment of early Indian pottery', *Man*, LIII (March 1953).

[3] Hunter's report on the glossy surface of the megalithic pottery is worth consideration in this context: 'The polish is achieved by rubbing the surface of the pots with the juice of *Tuthi* or Abutilon Indicum, a mucilaginous juice, somewhat like gum that is used by the natives at the present day to give a gloss to black earthenware. The surface can be scratched with a knife though it resists water. After rubbing the surface with the juice the vessel is again fired and a species of smear is thus produced which resists acids and water, but if you examine the broken edge of the vessel, you will find there is no thickness of the glaze either outside or inside.' *Indian Antiquary*, II (1873), p. 224.

Both in quality and characteristic finish the burial-pottery from Maski closely resembles that recovered from Adichanallur, Perumbair, Brahmagiri, Sanur, Porkalam and other excavated megalithic monuments in the Deccan and the south. Precise correspondence in shapes, however, are not very many. Brahmagiri, which, in all respects of cultural equipment, is a parallel site, affords the greatest analogies. The funnel-shaped lid and the tulip-shaped vase, types peculiar to the pit-circles, are present at Maski, as also some bowl- and vase-forms of cist-circles. Salt-glazing is essentially absent in the burial-pottery at both these sites. The occurrence of ring-stands at Maski, on the other hand, relates this industry with that at Porkalam, Arikamedu, Adichanallur and sites in Coimbatore, Salem and Chingleput Districts. Strangely enough, no dish-forms were met with in the burials at Maski, although they are quite abundant in the habitational deposits. From a comparative study of the pottery-types obtaining at Maski, Brahmagiri, Porkalam and other sites, it is evident that, beyond the identity of fabric, there is not much community between the industries of different regions. A family-likeness is, however, indicated by a few types linking one regional industry with the other, obviously manifesting possible ramifications of one integral culture or developments of a common pattern.

The following is a classification of pottery-types obtained in the burials.

(i) *Class B(i)* (figs. 14-16)

Type B(i) 1. Bowl of Black-and-red Ware with an externally grooved rim and rounded sides; roughly comparable with type B(iv)5 (fig. 20). Of fine fabric and thin section, it is treated both externally and internally with a slip which has burnt black-and-red in the characteristic manner showing black inside and black-and-red outside with black confined to the upper portion.[1] Analogies come from the Brahmagiri cist-circles.[2] *Variant B(i) 1a*, of the same ware and fabric, has slightly thicker walls, a conical profile and a roughly pointed base. *Variant B(i) 1b* of the same ware and fabric as above differs in having a flat base and internally ledged sides. *Variant B(i) 1c*, of the same ware and fabric, differs from the main type in having convex shoulders and a flattish base. *Variant B(i) 1d* of the same ware and fabric, differs from the main type in having a segmented profile and a rounded base. Analogies occur at Brahmagiri.[3] *Variant B(i) 1e*, also of the same ware and fabric, differs from the main type in being deeper and is further distinguished by a graffito executed after firing on the inside of the base.

Type B(i) 2. Vase of Black-and-red Ware with a vertical clubbed rim, an oblique shoulder and a rounded base; comparable with type B(ii)2 (fig. 17).

Type B(i) 3. Vase of Black-and-red Ware with an out-curved featureless rim, an oblique shoulder, a carinated profile and a rounded base; roughly comparable with type B(iii)2 (fig. 18) and type 16 from habitational deposits (fig. 22). *Variant B(i) 3a*, of the same ware and fabric, differs from the above in having an externally thickened rim and is further distinguished by a graffito executed after firing both externally and internally. Analogies come from Brahmagiri.[4]

Type B(i) 4. Vase of Black-and-red Ware with an almost vertical rim, a globular profile and a flattish base. *Variant B(i) 4a*, of the same ware and fabric, differs from the above in having an externally grooved rim and a less prominent neck. *Variant B(i) 4b*, of the same ware and fabric, differs from the main type in having a rounded base; roughly comparable with type B(v)5 (fig. 21). Analogies come from Brahmagiri.[5]

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[1] Unless otherwise stated, the fabric of the Black-and-red Ware listed here is of a similar technique.

[2] *Ancient India*, no. 4, *op. cit.*, p. 210, fig. 9, *C3* and *C8*.

[3] *Ibid.*, p. 223, fig. 17, *11*.

[4] *Ibid.*, p. 223, fig. 17, *3*.

[5] *Ibid.*, p. 223, fig. 17, *6*.

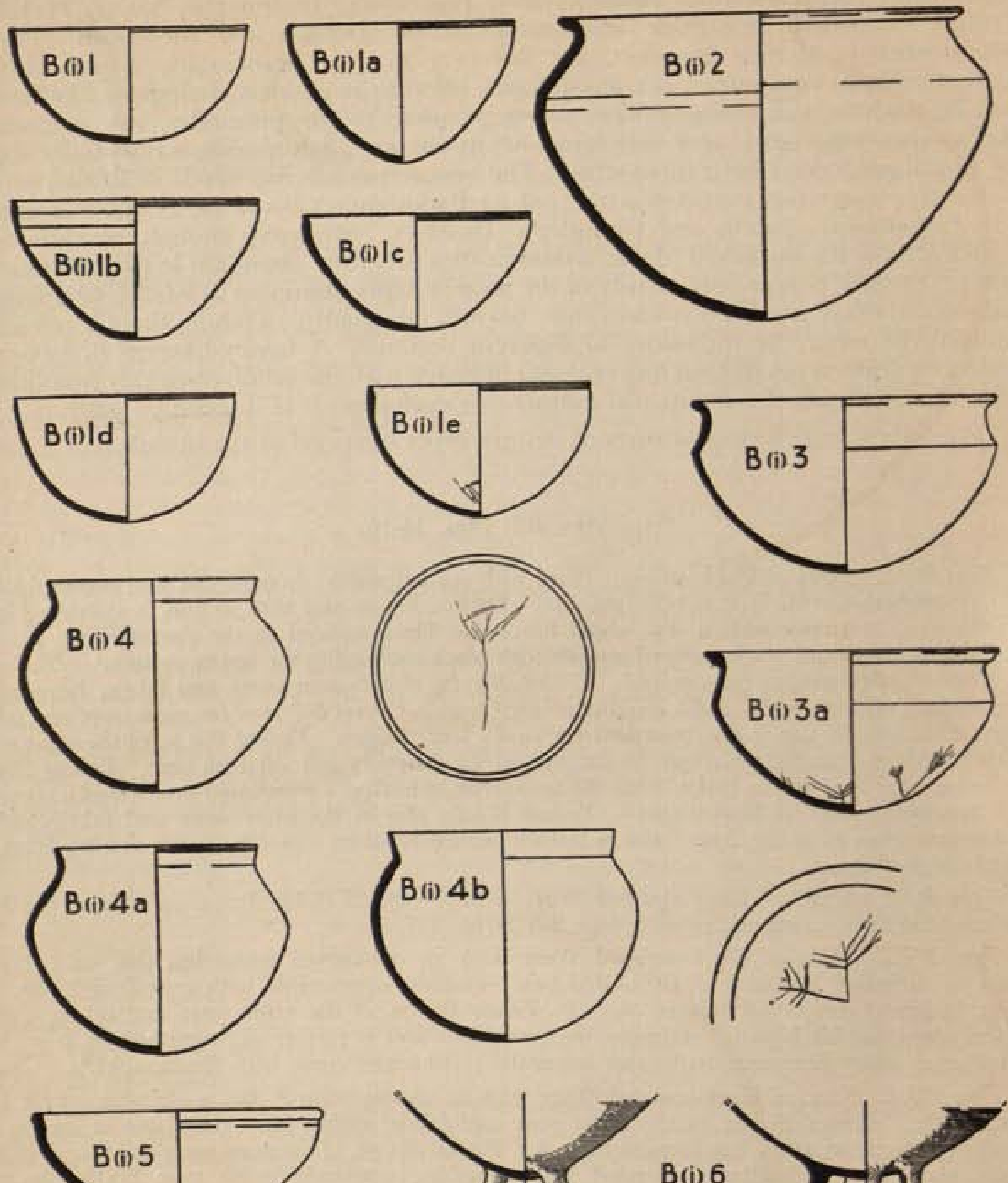


FIG. 14. *Pottery from Period II: burial-pottery, class B(i)*

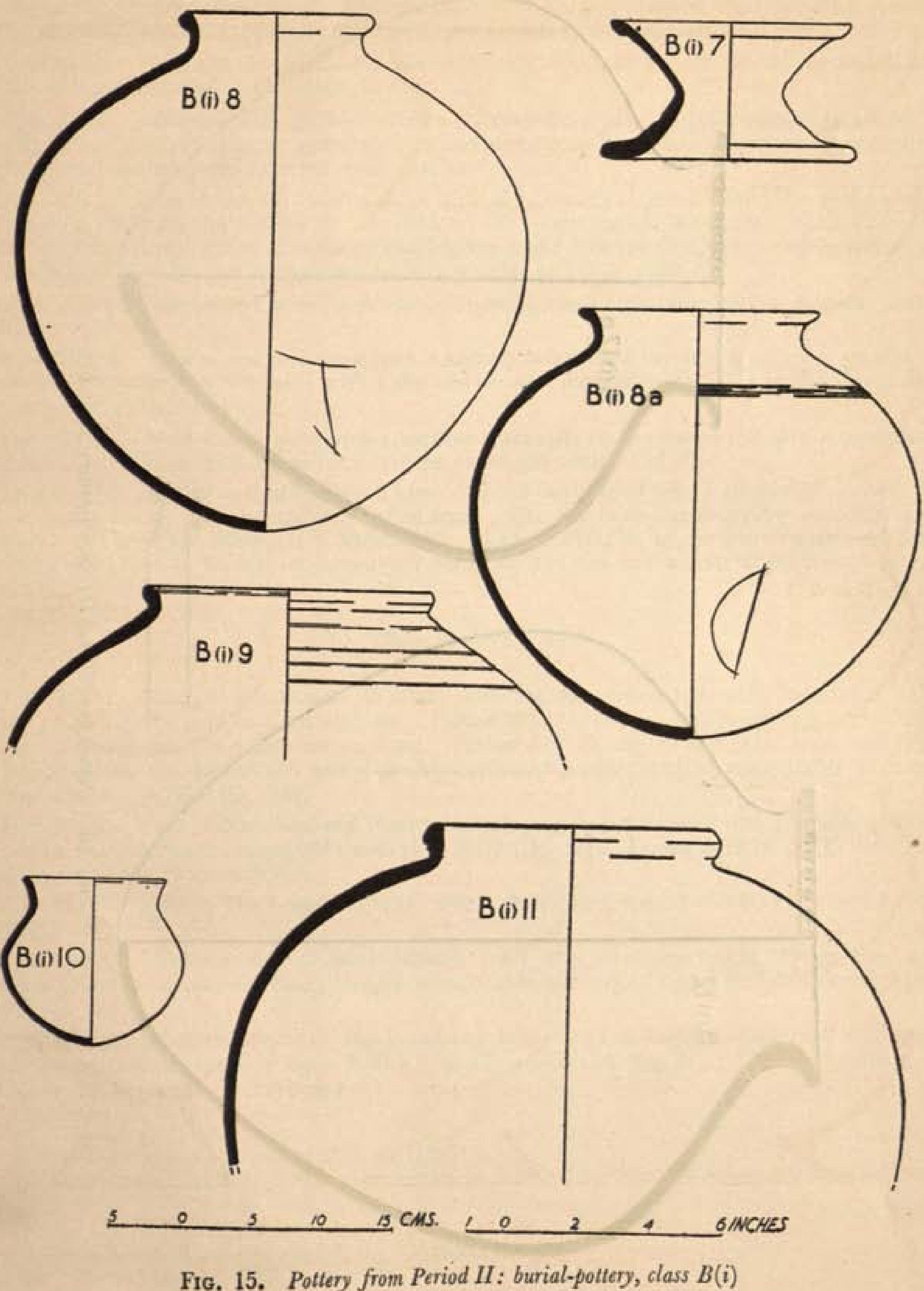


FIG. 15. *Pottery from Period II: burial-pottery, class B(i)*

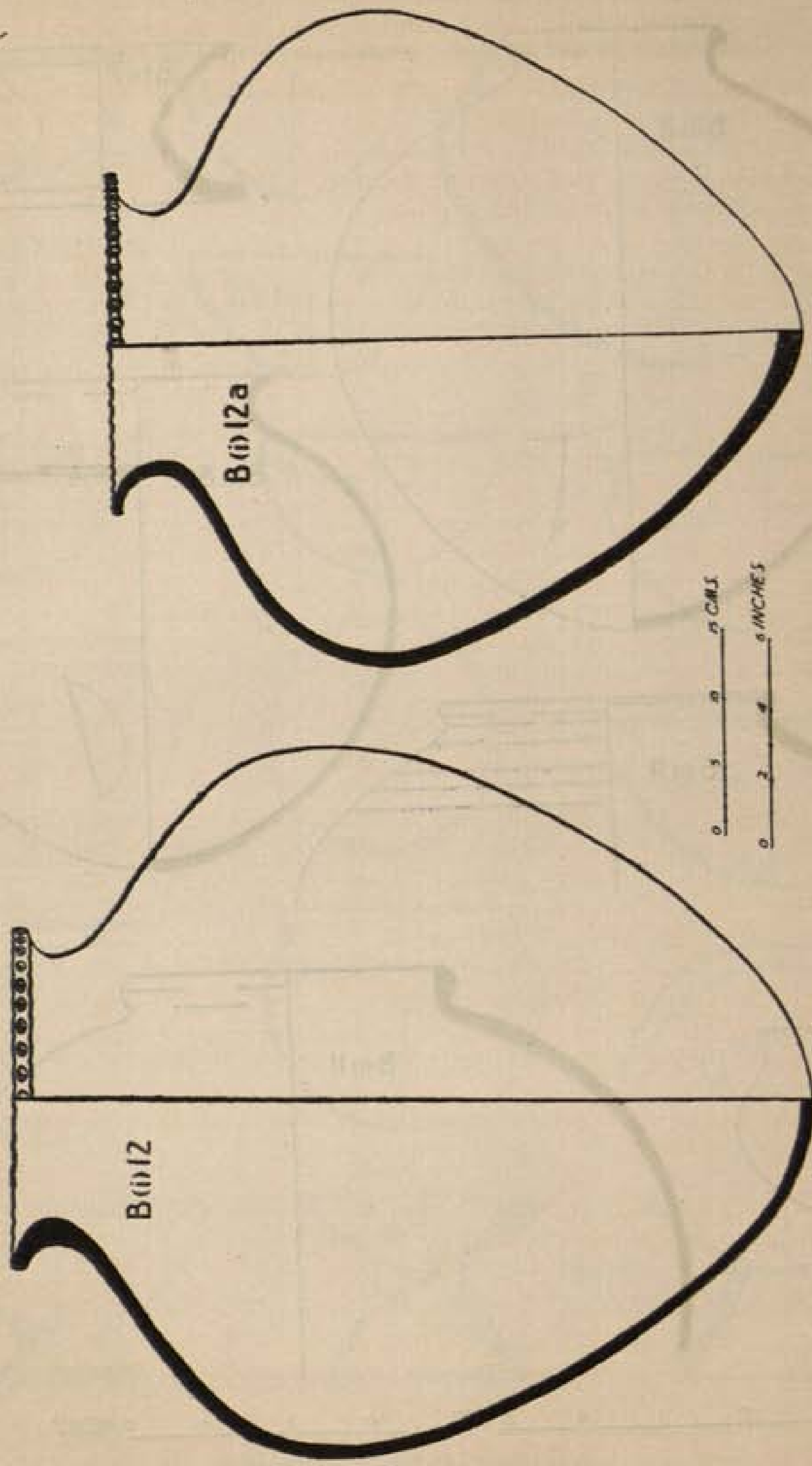


FIG. 16. *Pottery from Period II: burial-pottery, class B(i)*

Type B(i)5. Vase of Black-and-red Ware with an externally thickened rim and a hollow pedestal-base. A pedestalled vessel of black polished ware of a variant type was also recovered from the pit-circles at Brahmagiri[1] and from the urn-burials at Adichanallur.[2]

Type B(i)6. A unique vase of Black-and-red Ware with a hollow pedestal having an externally grooved rim-base and four oval-shaped holes.

Type B(i)7. Ring-stand of red ware with a thickened rim-base; roughly comparable with type B(v)7 (fig. 21). Analogies occur abundantly at Adichanallur, Perumbair, Arikamedu and sites in Chingleput and Coimbatore Districts and Cochin.[3]

Type B(i)8. Vase of red ware with a short vertical externally round-collared rim and a globular profile, distinguished on the outside by a graffito on the lower part of the body. *Variant B(i)8a,* of the same ware and fabric, differs in having a clubbed rim and a grooved shoulder; roughly comparable with type B(iv)4 (fig. 20). It is also marked by a graffito on the outside.

Type B(i)9. Vase of red ware with an out-turned featureless rim and a convex grooved shoulder.

Type B(i)10. Vase of dull red ware with a slightly out-turned rim and a globular profile. Of medium fabric, it is treated externally with a slip and shows a mottled surface due to indifferent firing. Analogies occur at Brahmagiri.[4]

Type B(i)11. Vase of red ware with a vertical externally oval-collared rim and a prominently convex shoulder. Of medium fabric, it is treated externally with a red slip.

Type B(i)12. Big jar of drab-coloured ware with an out-turned rim, a thickened concave neck and an elongated body with a narrow rounded base. The rim is distinguished by cord-like finger-impressions. Of medium fabric, it is hand-made. *Variant B(i)12a,* of the same ware and fabric, differs from the above in having an out-curved vertically cut rim and a conical profile.

(ii) *Class B(ii)* (fig. 17)

Type B(ii)1. Vase of Black-and-red Ware with an out-turned internally thickened rim, a carinated profile and a narrow rounded base. *Variant B(ii)1a,* of the same ware and fabric, differs in having a clubbed rim and a less narrow base. *Variant B(ii)1b,* also of the same ware and fabric, differs in having an out-curved rim and a weakly carinated profile; roughly comparable with types B(i)3 (fig. 14) and B(iii)2 (fig. 18).

Type B(ii)2. Vase of Black-and-red Ware with an out-turned thickened rim, a bluntly carinated profile and a rounded base; comparable with type B(i)2 (fig. 14). *Variant B(ii)2a,* of the same ware and fabric, lacks the thickened rim.

Type B(ii)3. Vase of Black-and-red Ware with a flared rim, ledged shoulder, a conical profile and a flat base.

Type B(ii)4. Miniature vase of Black-and-red Ware with an out-turned featureless rim, a low girth and a presumably rounded base; roughly comparable with type 7 from the habitational deposits (fig. 22).

Type B(ii)5. Miniature vase of Black-and-red Ware with a slightly out-turned rim and a rounded profile, comparable with types B(iii)3 (fig. 18) and B(v)4 (fig. 21). Similar types are also available in the pit-circles at Brahmagiri.[5]

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[1] *Ancient India*, no. 4, *op. cit.*, p. 218, fig. 14, *P12.*

[2] Alexander Rea, *Catalogue of Prehistoric Antiquities from Adichanallur and Perumbair* (Madras, 1915), pl. VIII, *3.*

[3] Thapar, *op. cit.*, fig. 2, *10.*

[4] *Ancient India*, no. 4, *op. cit.*, p. 212, fig. 11, *C20e.*

[5] *Ibid.*, p. 219, fig. 15, *P20.*

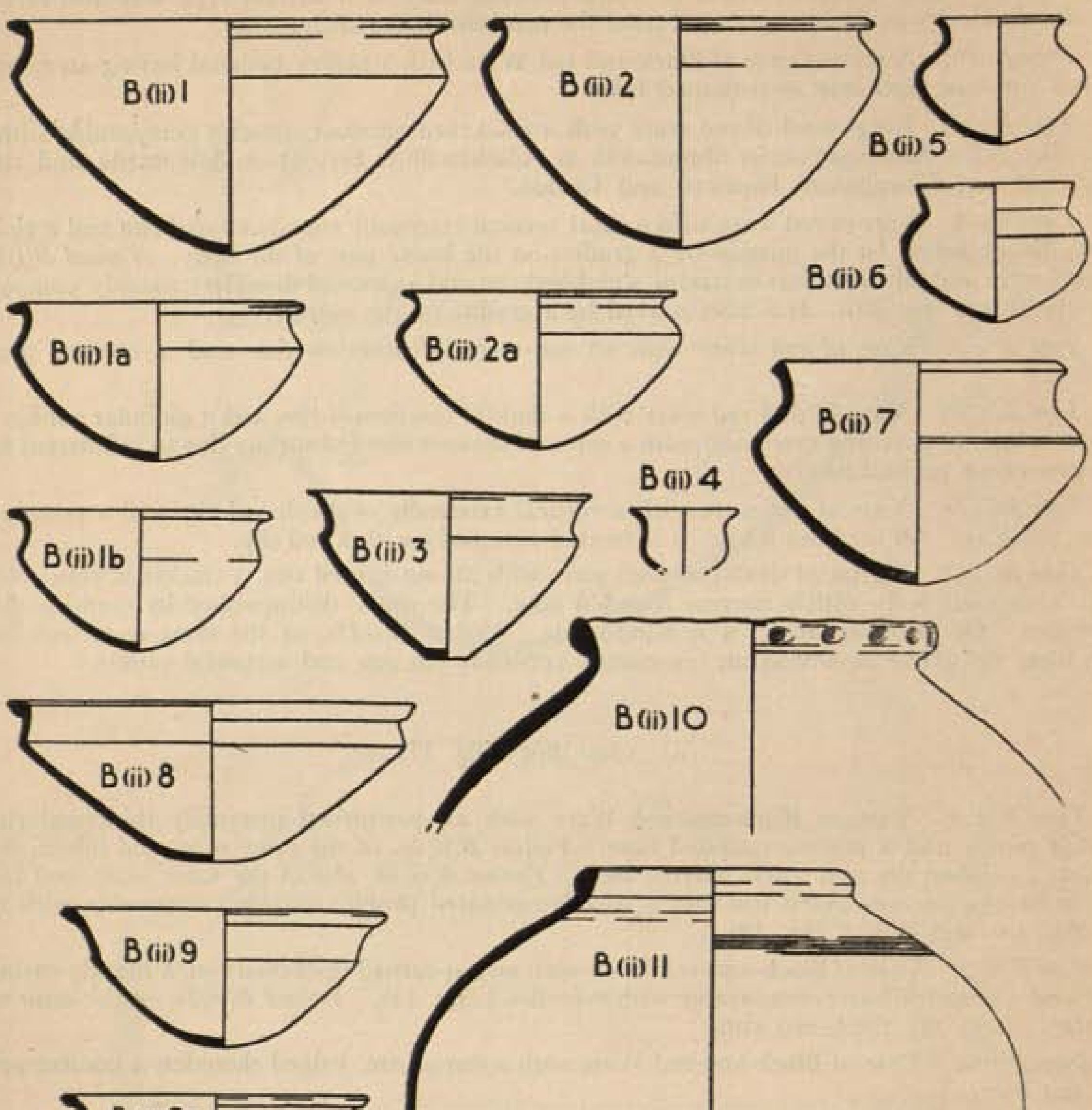


FIG. 17. *Pottery from Period II: burial-pottery, class B(ii)*

Type B(ii)6. Vase of Black-and-red Ware with an out-turned sharpened rim, carinated at the neck and having a girth-groove, a rounded profile and a pointed base; roughly comparable with type B(v)5 (fig. 21).

Type B(ii)7. Vase of Black-and-red Ware with an out-turned thickened rim, bulged shoulder having a girth-groove and sides narrowing to a rounded base.

Type B(ii)8. Vase of Black-and-red Ware with an out-turned thickened rim, a sharply carinated shoulder and sides narrowing to a flattish base; comparable with type B(iii)1 (fig. 18), along with its variants. Analogies occur at Brahmagiri.[1]

Type B(ii)9. Tulip-shaped vase of Black-and-red Ware with a flared externally thickened rim, a ledged shoulder and a rounded base; comparable with type B(iii)5 (fig. 18) and type 13 from the habitational deposits (fig. 22). Analogies come from Brahmagiri.[2] *Variant B(ii)9a*, of the same ware and fabric, has a flattish base. *Variant B(ii)9b*, of the same ware and fabric, has a more emphatic rim and a sharp internal carination corresponding to the ledge outside.

Type B(*ii*)*10.* Vase of red ware with an out-turned externally oval-collared rim, distinguished by sunk thumb-impressions, and a convex shoulder. Of medium fabric, which has burnt black in the section and shows grit, it is treated only externally with a red slip which runs up to the rim-portion on the inside as well.

Type B(ii)11. Vase of red ware with a short vertical thickened rim, a grooved shoulder and a globular profile. Of medium fabric, which has burnt black in the section and shows grit in the paste, it is treated only externally with a red slip.

(iii) *Class B(iii)* (figs. 18 and 19)

Type B(iii)1. Vase of Black-and-red Ware with an out-turned featureless rim, a sharp carination at the shoulder and a rounded base; comparable with type B(ii)8 (fig. 17). *Variant B(iii)1a*, of the same ware and fabric, has an out-turned externally square thickened rim and a flat base. *Variant B(iii)1b*, of the same ware and fabric, differs from the main type in having a clubbed rim; comparable with type B(v)1 (fig. 21) and type 20 from the habitational deposits (fig. 22).

Type B(iii)2. Vase of Black-and-red Ware with an out-turned featureless rim and rounded shoulders; roughly comparable with types B(i)3 (fig. 14) and B(ii)1b. (fig. 17).

Type B(iii)3. Vase of Black-and-red Ware with a slightly out-turned featureless rim; a weak carination at the neck and a globular profile; comparable with types B(ii)5 (fig. 17) and B(v)4 (fig. 21).

Type B(iii)4. Distinctive lid of Black-and-red Ware with an out-turned slightly thickened rim-base, a funnel-shaped profile and a flat top; comparable with type B(v)2 (fig. 21) and type 23 from the habitational deposits (fig. 23). Similar forms are typical of the pit-circles at Brahmagiri.[3]

Type B(iii)5. Tulip-shaped vase of Black-and-red Ware with a pointed elliptical-collared rim, a ledged shoulder and a flat base; roughly comparable with type B(ii)9 (fig. 17). Analogies exist at Brahmagiri.[4] *Variant* B(*iii*)*5a*, of the same ware and fabric, differs in having a perfectly elliptical rim and an internal carination corresponding to the ledge outside. *Variant B(iii)5b*, of the same ware and fabric as above, differs from the main type in having a rounded base.

[1] *Ancient India*, no. 4, *op. cit.*, p. 219, fig. 15, *P19.*

[2] *Ibid.*, p. 218, fig. 14, *P11* and its variants.

[3] *Ibid.*, p. 217, fig. 13, *P5.*

[4] *Ibid.*, p. 218, fig. 14, *P11.*

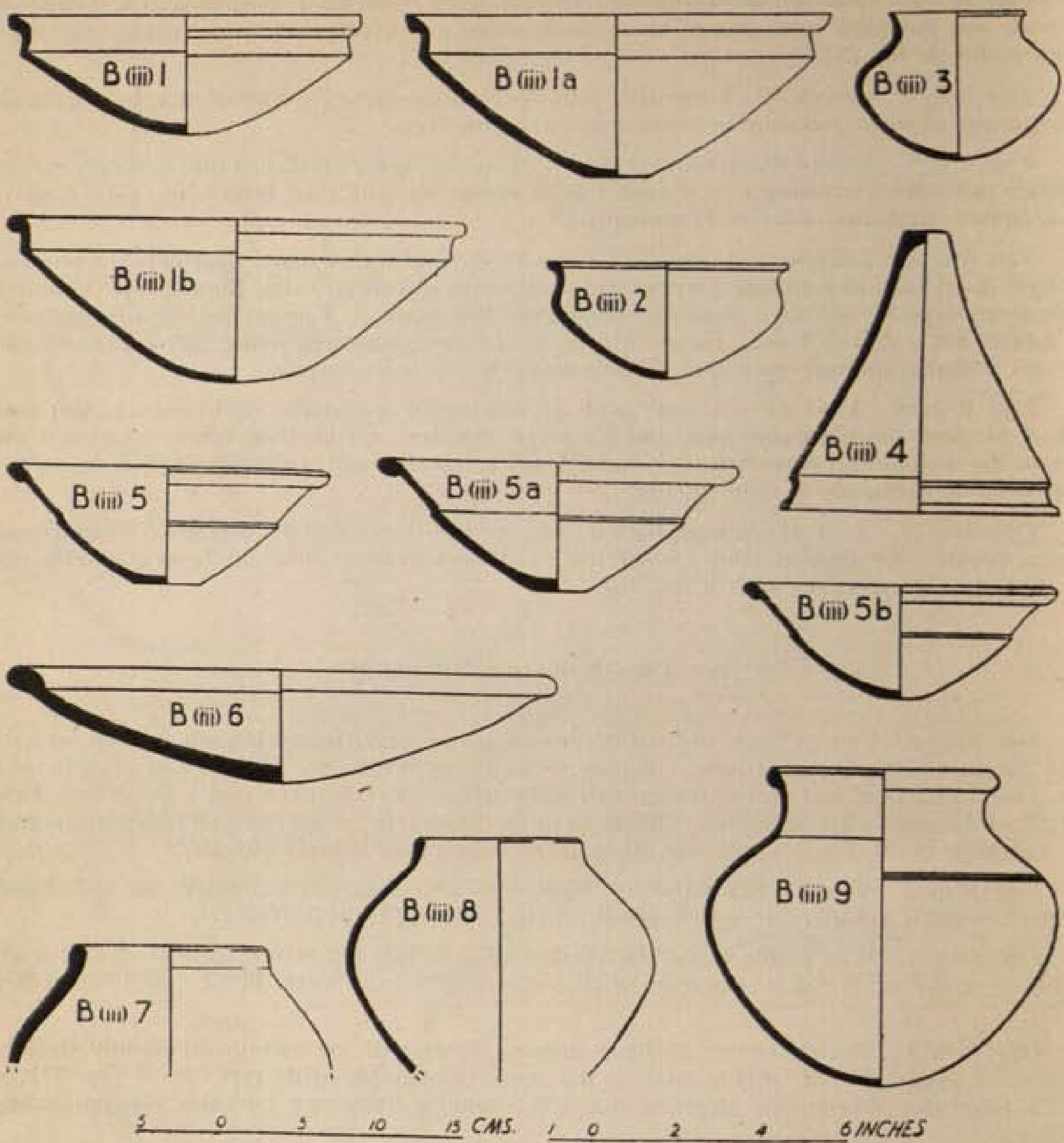


FIG. 18. *Pottery from Period II: burial-pottery, class B(iii)*

Type B(iii)6. Shallow dish of red ware with an internally elliptical-collared rim and a concave base; comparable with type B(v)6 (fig. 21). Of medium fabric, which has burnt smoky black in the section and shows grit, it is treated only internally with a red slip. Analogies come from Brahmagiri.[1]

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[1] *Ancient India, no. 4, op. cit.*, p. 218, fig. 14, *P14a.*

Type B(iii)7. Vase of red ware with a vertical featureless rim and an oblique shoulder. Of coarse fabric, which has burnt smoky black in the section and shows grit in the paste, it is treated only externally with a thin orange-coloured slip.

Type B(iii)8. Vase of red ware with a sharp vertical thickened rim, a rounded profile and sides tapering to a presumably rounded base. Of the same fabric as above but indifferently fired.

Type B(iii)9. Vase of red ware with a vertical externally thickened and internally undercut rim, a concave neck and a rounded profile having two grooves just above the girth. Of the same fabric as above. Analogies exist at Brahmagiri.[1]

Type B(iii)10. Basin (used here as a lid) of red ware with an out-turned, thickened and obliquely cut rim, a carination at the shoulder and sides tapering to a flat base; comparable with type B(iii)1a (fig. 18). Of medium fabric, which has burnt black in the section, it is treated both externally and internally with a red slip.

Type B(iii)11. Hand-made jar of red ware with an almost vertical externally cordoned rim, a convex shoulder, an elongated profile and a round base. It is further distinguished by a graffito executed on its shoulder after firing. Of coarse fabric, which has burnt black in the section, it is treated only externally with a red slip and shows a mottled surface due to indifferent firing. It was found collapsed in the pit along with its lid.

(iv) *Class B(iv)* (fig. 20)

Type B(iv)1. Vase of red ware with an out-turned featureless rim and a globular body It is further distinguished by a graffito executed after firing on the lower part of its body. Of medium fabric, which has burnt smoky dark in the section and is indifferently fired, it is treated only externally with a red slip.

Type B(iv)2. Vase of red ware with an out-turned externally thickened rim and a globular body, the lower part of which bears a graffito. Of the same fabric as above.

Type B(iv)3. Vase of red ware with a clubbed rim and a globular body. It is distinguished by a thicker section and graffito on the lower part of the body. Of the same fabric as above.

Type B(iv)4. Vase of red ware with an out-curved featureless rim, a grooved shoulder and a globular body; roughly comparable with type B(i)8a (fig. 15). Of the same fabric as above, it bears on the lower half a graffito executed after firing.

Type B(iv)5. Bowl of Black-and-red Ware with a slightly everted rim, grooved sides and a rounded base; roughly comparable with type B(i)1 (fig. 14) and type 3 from the habitational deposits (fig. 22).

(v) *Class B(v)* (fig. 21)

Type B(v)1. Vase of Black-and-red Ware with a horizontally splayed out featureless rim, a sharply carinated shoulder and sides tapering to a slightly concave base; roughly comparable with type B(iii)1b (fig. 18) and type 20 from the habitational deposits (fig. 22). *Variant B(v)1a*, of the same ware and fabric, differs in having a slightly thicker rim and a flat base. *Variant B(v)1b*, also of the same ware and fabric, differs from the main type in having a rounded base and lacks the internal carination.

[1] *Ancient India*, no. 4, *op. cit.*, p. 212, fig. 11, *C24*.

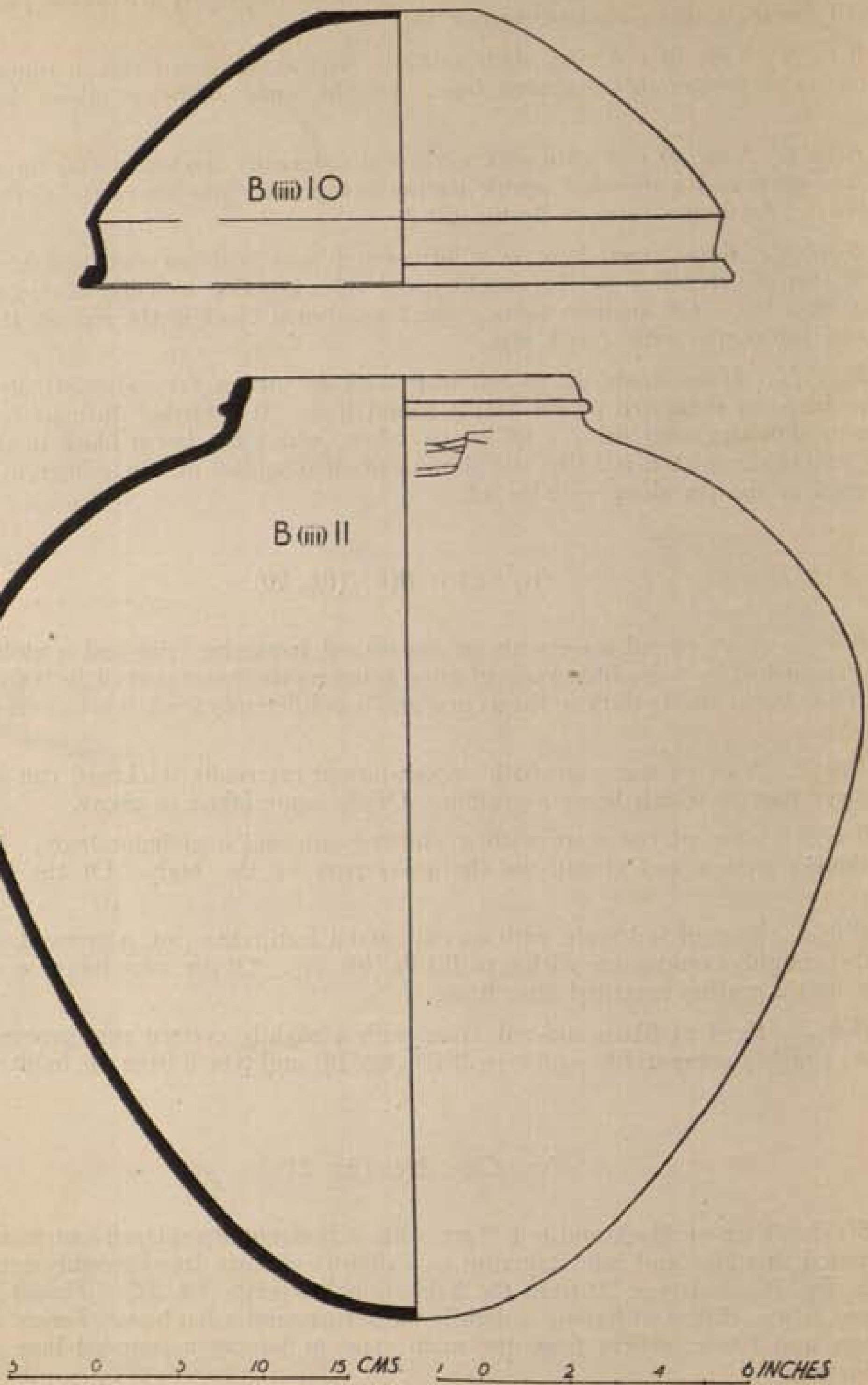


FIG. 19. *Pottery from Period II: burial-pottery, class B (iii)*

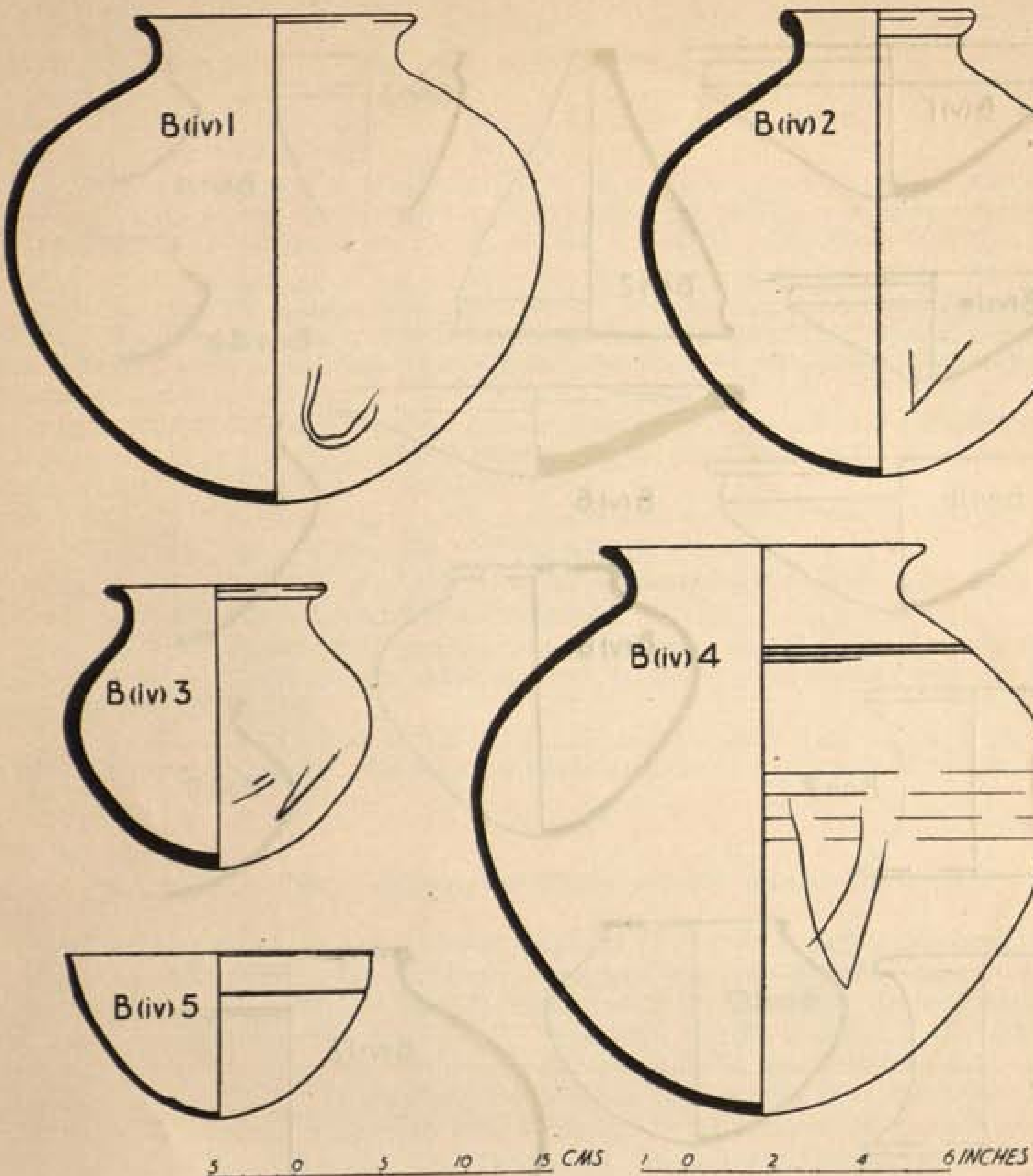


FIG. 20. *Pottery from Period II: burial-pottery, class B (iv)*

Type B(v)2. Lid of Black-and-red Ware with an out-curved featureless rim-base, elongated funnel-shaped body and a flat terminal; comparable with type B(iii)4 (fig. 18) and type 23 from the habitational deposits (fig. 23).

Type B(v)3. Vase of Black-and-red Ware with an out-turned rim, a carinated shoulder and elongated sides tapering to a presumably round base. Analogies exist at the town-site of Brahmagiri.[1]

[1] *Ancient India*, no. 4, *op. cit.*, p. 234, fig. 25, *T111.*

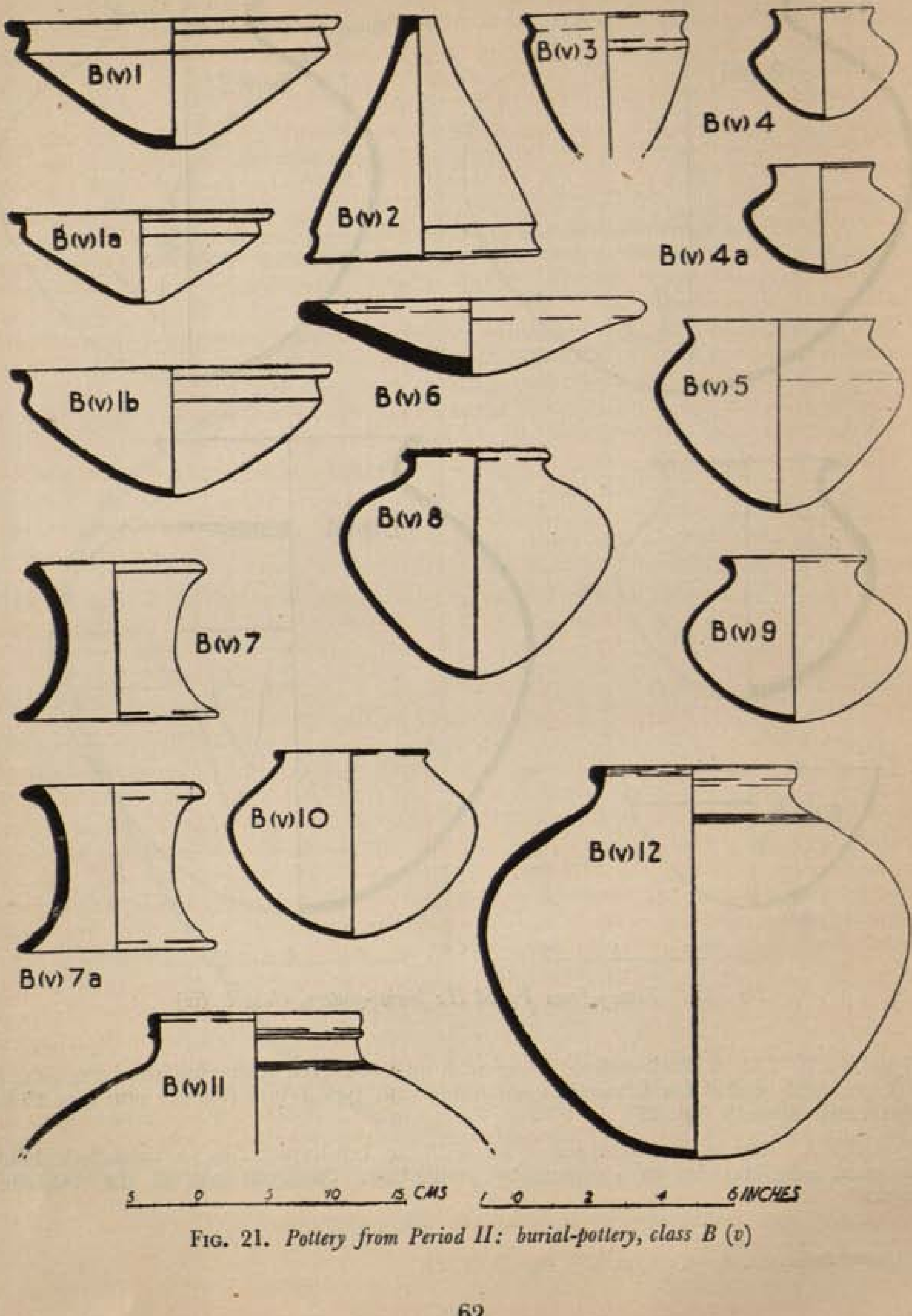


FIG. 21. *Pottery from Period II: burial-pottery, class B (v)*

Type B(v)4. Vase of Black-and-red Ware with an out-turned featureless rim, a slightly bulged body and a rounded base. Of the same fabric as above, it is roughly similar to type B(iii)3 (fig. 18). *Variant B(v)4a,* of the same ware and fabric, is thinned at the neck and has a lesser incline of the rim.

Type B(v)5. Vase of Black-and-red Ware with an out-turned featureless rim, a carinated neck, a slightly bulged body and a round base; comparable with types B(i)4b (fig. 14) and B(ii)6 (fig. 17). It is also parallelled at Brahmagiri[1] and Adichanallur.[2]

Type B(v)6. Shallow dish of red ware with an internally elliptical-collared rim and a convex base; comparable with type B(iii)6 (fig. 18) and type 29 from the habitational deposits (fig. 23). Of medium fabric, which has burnt black in the section, it is treated only internally with a red slip.

Type B(v)7. Ring-stand of red ware with a thickened upper half; roughly comparable with type B(i)7 (fig. 15). Of medium fabric, it is treated both externally and internally with a red slip. *Variant B(v)7a,* of the same ware and fabric, differs only in the shape of the rim which is more emphatic and in having a weak cordon near the rim-base. Similar ring-stands with long profiles occur at Adichanallur and Perumbair.[3]

Type B(v)8. Vase of red ware with a vertical externally round-collared and internally undercut rim, a short neck and a globular profile. Of medium fabric, which has burnt smoky dark in the section, it is treated only externally with a thin slip.

Type B(v)9. Vase of red ware with an out-curved featureless rim, an oblique shoulder, a slightly bulged body and a round base. Of the same fabric as above.

Type B(v)10. Vase of red ware with a vertical externally round-collared rim, an oblique shoulder and a rounded body. Of the same fabric as above.

Type B(v)11. Vase of red ware with a vertical externally cordoned rim and a convex shoulder, grooved near the neck. Of the same fabric as above, it affords rough analogy with type 37 from the habitational deposits (fig. 24).

Type B(v)12. Vase of red ware with a thickened and internally undercut rim, a grooved convex shoulder and a rounded profile. Of the same fabric as above, it was recovered from below the level of the bones.

(ii) *Pottery from the habitational deposits*

The pottery from the habitational deposits of Period II falls into three classes, viz. the Black-and-red Ware, the all-black ware and the red-slipped ware. As already demonstrated (above, p. 50), all these industries with the discountable exception of the all-black ware are represented in the burials. Although specific and detailed resemblances in shapes are not very many, the difference is essentially in quantity and usage and not of chronology and culture. It may not be without significance that analogues of some of the forms of this group of pottery can be found in all classes of burials individually, indicating thereby a uniformity and identity of the cultural equipment.

The burial-types represented in this group are: B(i)3, B(ii)4, B(ii)9, B(iii)5, B(iii)6, B(iv)5, B(v)1, B(v)2, B(v)6 and B(v)11. On the other hand, quite a number of types are peculiar to the habitational deposits. The commonest form is the bowl, usually with a thin section and roughly straight sides (fig. 22, *1*), and allied forms include the bowl with incurved or rounded sides, sometimes externally grooved (fig. 22, *2*, *4* and *4a*), and the shallower cup with an out-curved rim (fig. 22, *7* and *8*). There are two types of the dish: one with roughly vertical sides and a convex base and the other with a carinated profile and

[1] *Ancient India*, no. 4, *op. cit.*, p. 223, fig. 17, *8*.
[2] Alexander Rea, *op. cit.* (1915), pl. VIII, *10*.
[3] *Ibid.*, pl. VI, *21*, and pl. XII, *2*.

a sagger base (fig. 22, *9* to *9c* and *20*), which merges into the vase with an out-curved or out-turned rim and a carinated profile (fig. 22, *18* and *19*). Exceptional forms are: (a) the funnel-shaped lid (fig. 23, *23*, *24* and *25*) and (b) the elongated vase (fig. 23, *26*). Brahmagiri, Chandravalli and Sanganakallu present some of the parallels in shapes.

The Black-and-red Ware and the all-black ware are characterized by the distinctive 'megalithic' fabric showing a burnished and polished, occasionally shining, surface, fine paste with normally thin well-burnt sections and an unmistakable usage of the wheel. Salt-glazing is confined to a couple of doubtful examples only (figs. 22, *9d* and 23, *32*). Of these two wares, the former, which, in addition, shows inverted firing technique is the more predominant and it is in fact this ware which has vageuly assumed a culture label implying the loosely-termed nomenclature the 'megalithic culture'. Though much still remains to be done in this direction, it must be stressed at this stage that before ascribing this ware to any particular culture, the associated industries as well as the region of occurrence must be taken into consideration. The black-and-red ware associated with the megaliths or of decidedly 'megalithic' fabric and finish (including identity of shapes) or occurring in a region where megalithic tombs are the norm in burial-types[1] could more appropriately be designated as the 'megalithic Black-and-red Ware', to distinguish it from similar wares recovered from sites unassociated with megaliths.[2] The occurrence of iron, a necessary adjunct of the Indian megalithic culture is yet another important factor to be reckoned with in this connection.[3] A note of caution is, therefore, necessary lest all black-and-red ware be taken to belong to the 'megalithic culture'.[4]

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[1]Sanganakallu in Bellary District and Arikamedu near Pondichery afford such examples, Subbarao, *op. cit.*, and J. M. Casal, *Foullies de Virampatnam—Arikamedu* (Paris, 1949), pp. 35 ff. Sengamedu in South Arcot District is yet another such site, *Ancient India*, no. 9 (1953), p. 167.

[2]Such sites include Śiśupālgarh and Jaugaḍa in Orissa, *Ancient India*, no. 5, pp. 84-86 and *Indian Archaeology 1956-57—A Review* (New Delhi, 1957), pp. 30-31; Nasik, Sankalia and Deo, *op. cit.*, p. 51; Bahal in East Khandesh, *Indian Archaeology 1956-57—A Review*, pp. 17-19; Prakash in West Khandesh, *Indian Archaeology 1954-55—A Review*, p. 13; Timbarva, *R. N.* Mehta, *Excavations at Timbarva, M. S.* University of Baroda (Baroda, 1955), pp. 7-9 and fig. 6 and Prabhas Patan (Somnath), *Indian Archaeology 1956-57—A Review*, pp. 16-17 both in Gujarat and Nagda and Ujjain in Malwa, *Indian Archaeology 1955-56—A Review*, p. 14 and *1956-57*, pp. 24-25.

[3]Ahar in Rajasthan, *Indian Archaeology 1954-55—A Review*, p. 14 and Nagda (information from Shri N. R. Banerjee), Maheswar and Navada Toli in Nimar District, H. D. Sankalia, 'Excavations in the Narmada valley', *Journal of the M. S. University of Baroda*, II, no. 2 (October 1953), pp. 99 ff. and Rangpur in Saurashtra also yielded a class of black-and-red ware (obviously produced as a result of the inverted firing technique), *Indian Archaeology 1954-55—A Review*, p. 12, but the context and the associated industries are quite different. Hastināpura is yet another site where a few black-and-red ware sherds have been found in association with the Painted Grey Ware, *Ancient India*, nos. 10 and 11 (1954-55), p. 44 and fig. 12, *XXXIV*. This black-and-red ware, painted in the case of Ahar, belongs to a chalcolithic assemblage assignable roughly to the first millennium B.C. Its genetic relationship with the 'megalithic' or the other black-and-red ware of Iron Age has yet to be established. Some sherds of black-and-red ware are also reported from the Harappan levels at Lothal, *Indian Archaeolgoy 1956-57— A Review*, p. 15 and Rupar (information from Dr. Y. D. Sharma).

[4]There are, writing generally, small differences in the body of the two wares, viz. the 'megalithic Black-and-red Ware' of peninsular India and the black-and-red ware of western and central India, the principal differentiation being usually in the finish and the paste. Although, pastes are of variable consistency due, perhaps, to the nature of the local clay, finish including hardness depends to a large extent on the firing temperature in the kiln. The peninsular ware is of a finer fabric and thinner section and is apparently fired under a temperature lower than the ware from western and central India. Salt-glazing or 'crazing' is a feature exclusively distinctive to neither of these. It is not present everywhere, being completely absent from the megalithic pottery at

The fabric of the red-slipped ware as a rule is medium and shows grit and such other tempering materials in the paste and has burnt smoky grey or black in the core-sections of most of the pots. Stray cases of indifferent firing showing mottled surface also exist. Noteworthy types in this ware are the lid with a flanged waist (fig. 23, *27*) and the dish with an internally collared rim (fig. 23, *29*). Both of these have analogues at Brahmagiri in the cist-circle and pit-circle respectively. The basin (fig. 23, *30-32*) and vase with an externally cordoned rim or grooved shoulder (fig. 24, *37*) are also abundant, and these, along with the lid, with some modifications, continue in the succeeding Period as well.

The following select types are illustrated.

Figs. 22-24

Type 1. Bowl of Black-and-red Ware with a vertical featureless rim and a flat base. Of fine fabric, it is treated both externally and internally with a slip which has burnt black-and-red in the characteristic manner. From a late level of Period II.

Type 2. Bowl of Black-and-red Ware with a slightly narrowing featureless rim, low girth and a convex base. Of fine fabric, it is treated with a slip which has burnt black-and-red both externally and internally, with the red confined to the rim-portion on the inside and upper half on the outside. The technique is more often met with in the pottery of Period III. From a late level of Period II. The example confirms the overlap of the two cultures referred to above (p. 11).

Type 3. Bowl of all-black ware with an internally sharpened rim and having a segmented profile with tapering sides; roughly comparable with type B(iv)5 (fig. 20). Of medium fabric, it is treated with a black slip both externally and internally. From the latest level of Period II.

Type 4. Bowl of Black-and-red ware with a narrowing featureless rim, rounded sides and thinner section. From the same level as no. 1 above. *Variant 4a* differs from the above in having an externally grooved rim and thicker sides and presumably being less deep. From a late level of Period II.

Type 5. Miniature bowl of Black-and-red Ware with a slightly everted rim, a ledged shoulder and a convex base. Comparing the size, the section is markedly thick. From the earliest level of Period II.

Type 6. Miniature bowl of Black-and-red Ware with an everted rim and convex sides. From the same level as above.

Type 7. Miniature bowl of Black-and-red Ware with an out-curved featureless rim and weakly carinated profile; comparable with type B(ii)4 (fig. 17). From the same level as above.

Type 8. Miniature bowl of all-black ware with an out-turned rim and a carinated shoulder. Of medium fabric, it is treated both externally and internally with a black slip. From the same level as above.

Type 9. Dish of Black-and-red Ware with a slightly closing, internally sharpened rim and sides weakly carinated to a convex base. From a late level of Period II. *Variant 9a*, of red ware, differs from the above in having a vertical featureless rim. Of medium fabric, indifferently fired, it is treated both externally and internally with a red slip. From a late level of Period II.

Brahmagiri and, save for two examples, also at Maski. Graffiti are a recognizable feature of the 'megalithic' pottery from peninsular India—a feature also shared by the non-megalithic black-and-red ware from Bahal. In shapes too, only the rudimentary forms, viz. the dish and the bowl, are common to both the regions. The typical forms of the peninsular ware, as for example, the ring-stand, elongated lid, funnel-shaped vase, three or four-footed vase, tulip-shaped vase, etc., are not represented in the ware from the other region. Besides, as a characteristic assemblage the peninsular ware is without analogy. Specific resemblance at the moment is confined to the technique of manufacture only. Further work is, however, called for to establish any reasonable hypothesis.

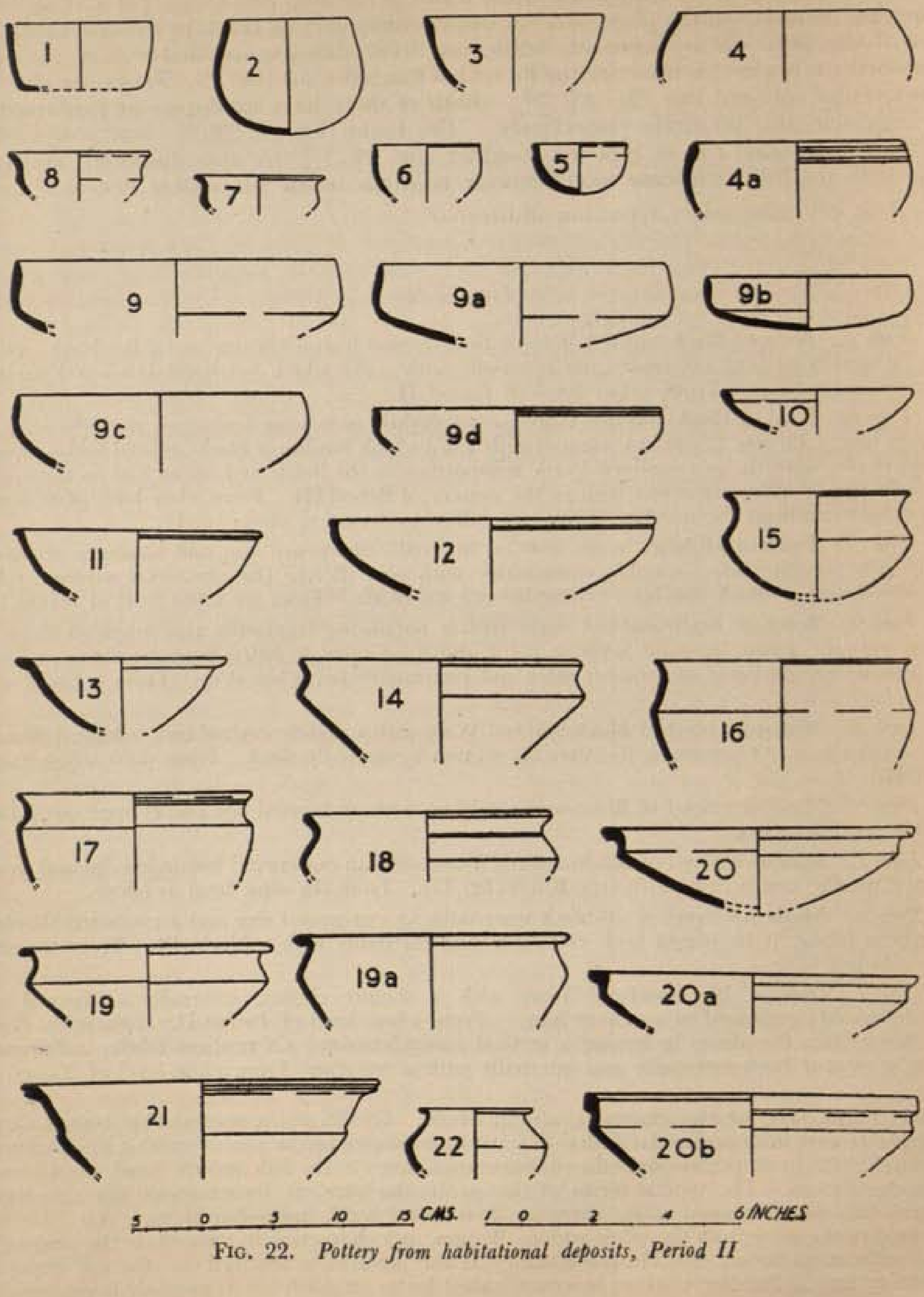


FIG. 22. *Pottery from habitational deposits, Period II*

Variant 9b, of Black-and-red Ware, differs from the above in having absolutely vertical sides and a convex base. From a late level of Period II. *Variant 9c*, of dull red ware, differs from the above in having convex sides and a prominently sagger base. Of medium fabric, which has burnt grey in the section, it is treated merely with a wash. From a late level of Period II. *Variant 9d*, of red ware, has an externally grooved rim. Of fine fabric, which has partly burnt black in the section, it is treated both externally and internally with a red slip and possibly is also salt-glazed. From a mid-level of Period II.

Type 10. Bowl-*cum*-lid of dull red ware with an internally oval-collared rim. Of medium fabric, it is treated internally with a red slip. From a late level of Period II.

Type 11. Bowl-*cum*-lid of dull red ware with a weakly clubbed rim. Of medium fabric, it is treated internally with a red slip. From a mid-level of Period II.

Type 12. Dish of Black-and-red Ware with an externally grooved flat-topped rim and rounded sides. From a mid-level of Period II.

Type 13. Tulip-shaped vase of Black-and-red Ware with a clubbed rim, a weak ledge round the body and a flattened convex base; roughly comparable with types B(ii)9 (fig. 17) and B(iii)5 (fig. 18). From an early level of Period II. Analogues exist at Brahmagiri.[1]

Type 14. Vase of Black-and-red Ware with an out-turned featureless rim, an oblique shoulder, a carinated profile and tapering sides. From an early level of Period II.

Type 15. Vase of Black-and-red Ware with an out-curved featureless rim, a carinated profile and a rounded base. From a mid-level of Period II.

Type 16. Vase of Black-and-red Ware with an out-curved rim, a carinated profile and seemingly tapering sides; roughly comparable with type B(i)3 (fig. 14). From an early level of Period II. Analogues exist at Sanganakallu.[2]

Type 17. Vase of Black-and-red Ware with an out-curved externally grooved rim and deeper sides possibly with an elongated profile. From an early level of Period II.

Type 18. Vase of Black-and-red Ware with an out-turned slightly thickened rim, an oblique shoulder and a weakly carinated profile. From the same level as above.

Type 19. Vase of all-black ware with a slightly folded featureless rim, an oblique shoulder, a carinated profile and tapering sides. Of fine fabric, it is treated both externally and internally with a black slip. From the earliest level of Period II. *Variant 19a*, of Black-and-red Ware, differs from the above in having an out-turned thickened rim. From an early level of Period II. A near cognate form occurs at Brahmagiri.[3]

Type 20. Dish of Black-and-red Ware with a short horizontally splayed out featureless rim, a carinated profile and a sagger base; roughly comparable with type B(v)1 (fig. 21). From a mid-level of Period II. *Variant 20a*, of all-black ware, differs from the above in having an absolutely flat-topped rim. Of fine fabric, it is treated both externally and internally with a black slip. From a mid-level of Period II. *Variant 20b*, of Black-and-red Ware, differs from the above in having a bud-shaped rim. From a mid-level of Period II.

Type 21. Vase of Black-and-red Ware, possibly tulip-shaped, with an externally thickened and grooved rim, a prominent ledge round the body and tapering sides. From a mid-level of Period II. Analogues exist at Sanganakallu.[4]

Type 22. Vase of red ware with a clubbed rim, an oblique shoulder and sides rounded towards the base. Of medium fabric, which has burnt smoky grey in the section, it is treated both externally and internally with a red slip. From a mid-level of Period II.

[1] *Ancient India*, no. 4, *op. cit.*, p. 218, fig. 14, *P11* and p. 234, fig. 25, *T103*.

[2] Subbarao, *op. cit.* (1948), p. 12, pl. V, *1*.

[3] *Ancient India*, no. 4, *op. cit.*, p. 223, fig. 17, *3*.

[4] Subbarao, *op. cit.* (1948), p. 12, pl. V, *1b*.

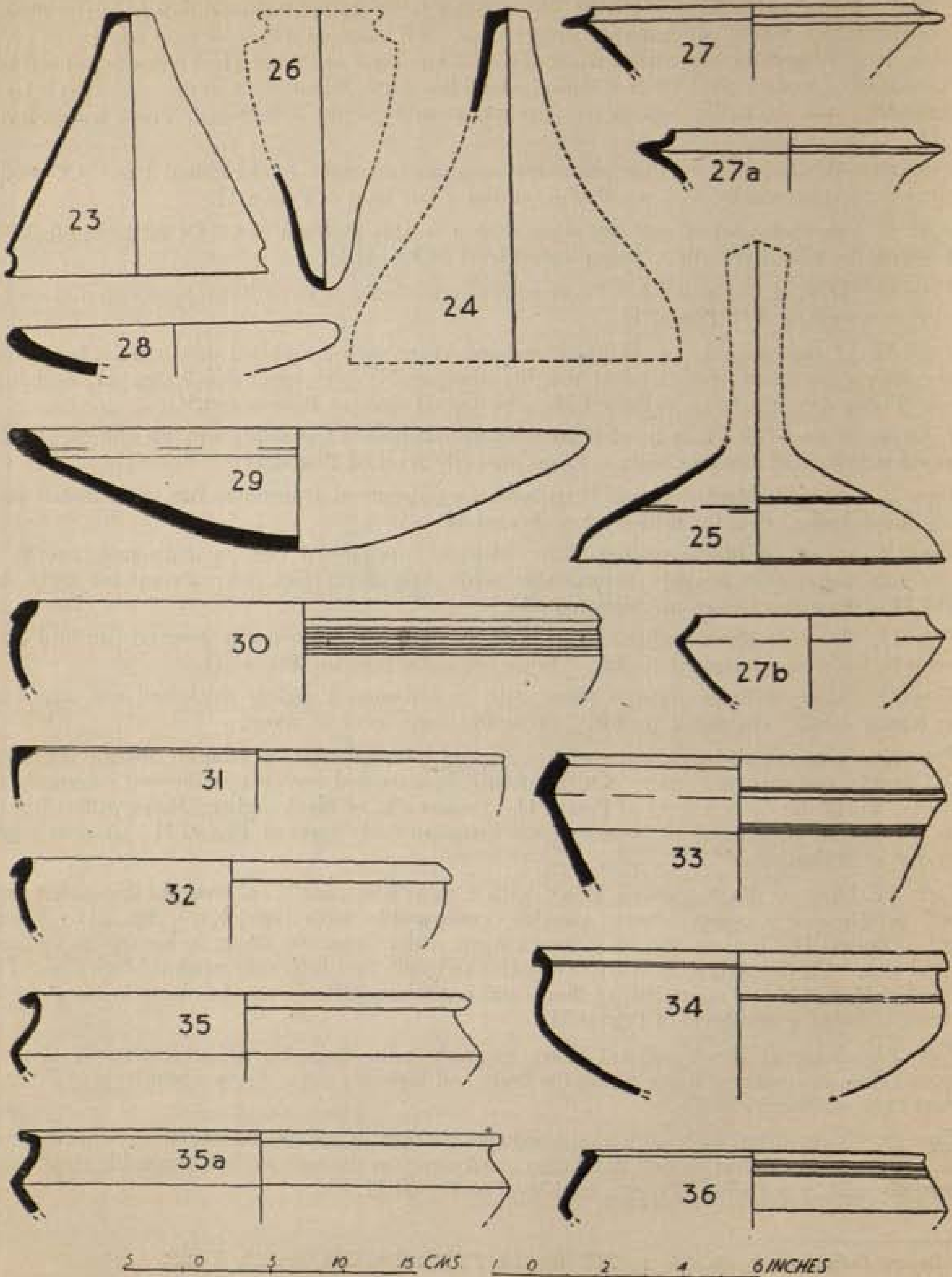


FIG. 23. *Pottery from habitational deposits, Period II*

Type 23. Funnel-shaped lid of Black-and-red Ware with an out-curved featureless rim-base and a flat terminal; comparable with types B(iii)4 (fig. 18) and B(v)2 (fig. 21). From a late level of Period II. Variants of the type occur at Brahmagiri.[1]

Type 24. Fragment of a funnel-shaped lid of Black-and-red Ware (reconstructed after Brahmagiri type T100). From a mid-level of Period II.

Type 25. Fragment of a funnel-shaped lid of all-black ware with an everted featureless rim-base and a groove in the mid-portion of the body. Of medium fabric, it is treated both externally and internally with a black slip. From an early level of Period II. Variants of this type occur at Brahmagiri.[2]

Type 26. Lower part of a vase of black polished ware (reconstructed after Brahmagiri type T99, variants of which occur in pit-circles as guide-type P1). Of fine fabric, it is treated both externally and internally with a black slip. From an early level of Period II.

Type 27. Lid of dull red ware with a vertical thinned rim, a flanged waist and tapering sides. Of medium gritty fabric, which has burnt smoky black in section, it is treated only internally with a red slip. From the latest level of Period II. *Variant 27a*, of the same ware, differs from the above in having a thicker lip. Of the same fabric and from the same level as above. *Variant 27b*, of dull red ware, differs from the main type in having an inturned featureless rim and in lacking the flanged waist. Of medium fabric, it is treated with a red slip only on the rim-portions. From the latest level of Period II. The type, along with its variant 27a, has analogues at Brahmagiri.[3]

Type 28. Shallow dish of red ware with a thickened rim and an imperfectly flat base. Of medium fabric, which has burnt black in the section, it is treated only internally with a bright red slip, and is seemingly polished. From the earliest level of Period II.

Type 29. Dish of red ware with an internally oval-collared rim and sides tapering to a convex base; roughly comparable with types B(v)6 (fig. 21) and B(iii)6 (fig. 18). Of coarse gritty fabric, which has partly burnt smoky black in the section and is indifferently fired, it is treated only internally with bright red slip and is seemingly polished. From a late level of Period II. Analogues occur at Brahmagiri.[4]

Type 30. Basin of red ware with an incurved externally cordoned rim and a multi-grooved shoulder. Of medium fabric, indifferently fired, it is treated both externally and internally with a red slip. From a late level of Period II. The type is very common and with variants continues in the following Period as well.

Type 31. Basin of red ware with an internally clubbed rim and almost vertical sides. Of fine fabric, which has burnt smoky grey in the section, it is treated both externally and internally with a red slip. From the latest level of Period II.

Type 32. Basin of greyish chocolate ware with an incurved externally oval-collared and undercut rim and convex sides. Of medium fabric, which has burnt grey in the section, it is treated both externally and internally with a greyish slip and is possibly salt-glazed. From the latest level of Period II.

Type 33. Basin of dull red ware with sharply inturned rim and tapering sides, grooved in the upper part. Of coarse fabric, which has burnt smoky grey in the section and is indifferently fired, it is treated both externally and internally with a red slip. From the same level as above.

Type 34. Vase of greyish black ware with an out-turned thickened rim, a grooved shoulder and rounded sides tapering to a presumably convex base. Of medium fabric, it is treated both externally and internally with a black slip. From a late level of Period II.

Type 35. Vase of red ware with an externally clubbed rim, an oblique shoulder and a carinated profile. Of medium fabric, which has burnt smoky grey in the section, it is treated both externally

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[1] *Ancient India*, no. 4, *op. cit.*, p. 217, fig. 13, *P5.*

[2] *Ibid.*, p. 217, fig. 13, *P3a.*

[3] *Ibid.*, p. 211, fig. 10, *C11* and *C11a.*

[4] *Ibid.*, p. 211, fig. 10, *C14*; p. 218, fig. 14, *P14*; and p. 233, fig. 24, *T91.*

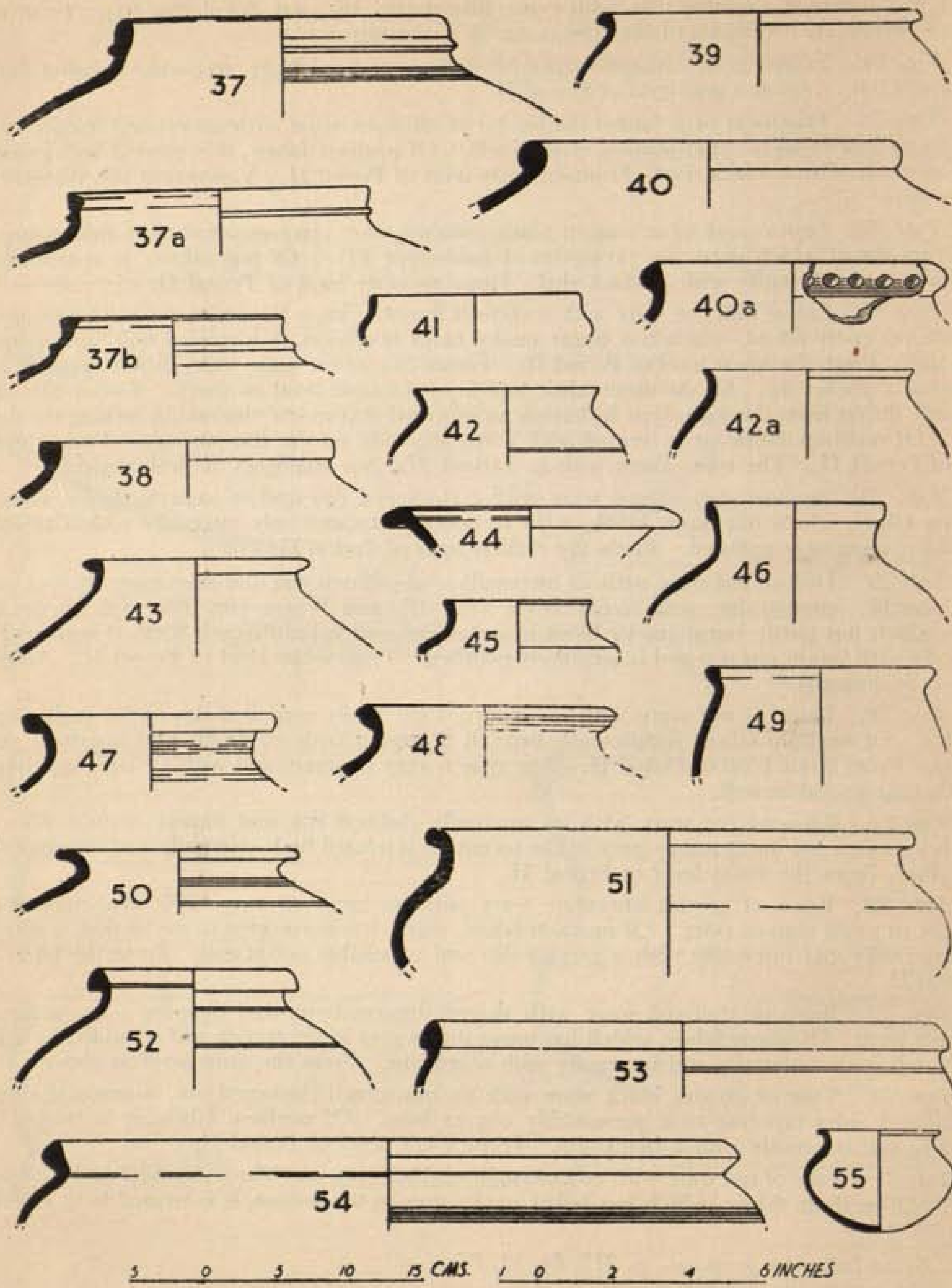


FIG. 24. *Pottery from habitational deposits, Period II*

and internally with a bright red slip. From an early level of Period II. *Variant 35a*, of dull red ware, differs from the above in having an out-turned featureless rim and a sharper carination on the body. Of medium gritty fabric, which has burnt smoky grey in the section, it is treated both externally and internally with a dull slip showing a mottled red surface. From a mid-level of Period II.

Type 36. Vase of dull grey ware with a slightly externally thickened rim, grooved on the shoulder and a carinated profile. Of medium fabric, indifferently fired, it is treated both externally and internally with a thin grey slip. From the latest level of Period II. Analogues in dull red ware exist at Brahmagiri.[1]

Type 37. Vase of red ware with a vertical externally cordoned rim and a multi-grooved oblique shoulder. Of medium fabric, which has burnt smoky grey in the section, it is treated externally with a tan red slip which extends also to the rim-portion on the inside; roughly comparable with type B(v)2 (fig. 21). From the latest level of Period II. The type with its variants is quite common in all the levels of the Period. *Variant 37a*, of red ware, differs from the above in having a bluntly beaked rim and a convex shoulder. Of medium fabric, which has burnt smoky black in the section, it is treated externally with a bright red slip. From a mid-level of Period II. *Variant 37b*, of dull red ware, differs from the above in having a thickened flat-topped rim and is further distinguished by a cordon on the shoulder. Of medium fabric, which has burnt grey in the section, it is treated both externally and internally with a dull slip showing mottled red surface. From a late level of Period II.

Type 38. Vase of red ware with a vertical externally square thickened rim. Of medium fabric, which has partly burnt smoky black in the section, it is treated both externally and internally with a red slip. From an early level of Period II.

Type 39. Vase of all-black ware with an out-curved thickened rim and an oblique shoulder. Of fine fabric, it is treated both externally and internally with a black slip and is also polished. From an early level of Period II.

Type 40. Vase of red ware with a round-collared heavy rim and an oblique shoulder. Of coarse fabric containing grit and husk and burnt smoky black in the section, it is treated both externally and internally with a red slip. From the earliest level of Period II. *Variant 40a*, of dull grey ware, is distinguished from the above in having finger-tip decorations over the rim. Of the same fabric as above, it is treated both externally and internally with a dull grey slip. From an early level of Period II.

Type 41. Vase of red ware with a vertical featureless rim and slightly bulged body. Of medium fabric, which has burnt smoky grey in the section, it is treated merely with a wash. From a late level of Period II.

Type 42. Vase of all-black ware with an out-turned featureless rim, a concave neck and a convex shoulder distinguished further by a groove in the mid-portion. Of fine fabric, it is treated both externally and internally with a black slip and is polished. From an early level of Period II. *Variant 42a*, of all-black ware, differs from the above in having a vertical everted rim and a thicker section. Of medium fabric, it is treated both externally and internally with a black slip. From the earliest level of Priod II.

Type 43. Vase of red ware with a clubbed rim and an oblique shoulder. Of medium fabric, which has burnt black in the section, it is treated both externally and internally with a red slip. From an early level of Period II.

Type 44. Lid-*cum*-bowl of reddish buff ware with a drooping featureless rim, internally thickened and tapering sides. Of medium fabric, it is treated merely with a wash. From a late level of Period II. Near cognate forms exist at Sanganakallu.[2]

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[1] *Ancient India*, no. 4, *op. cit.*, p. 217, fig. 13, *P7a.*

[2] Subbarao, *op. cit.* (1948), p. 12, pl. V, *IIa.*

Type 45. Vase of all-black ware with a vertical slightly thickened rim, a concave neck and a squarish shoulder. Of fine fabric, it is treated only externally with a black slip and is also polished. From a late level of Period II.

Type 46. Vase of red ware with a vertical externally thickened rim and a concave neck. Of medium fabric, which has partly burnt smoky black in the section, it is treated externally with a bright red slip which also extends to the rim-portion on the inside. From a mid-level of Period II.

Type 47. Vase of red-slipped ware with an out-curved, partially drooping, thickened rim and a multi-grooved shoulder. Of medium fabric, which has burnt smoky grey in the section, it is treated both externally and internally with a tan red slip. From a late level of Period II.

Type 48. Vase of red ware with an out-curved externally thickened and grooved rim and a concave neck. Of the same fabric as above. From an early level of Period II. Analogues exist at Sanganakallu[1] and Brahmagiri.[2]

Type 49. Vase of dull red ware with an out-turned internally thickened rim and sides widening to a low girth. Of medium fabric, which has burnt smoky grey in the section, it is treated externally with a thin red slip. From a mid-level of Period II.

Type 50. Vase of red ware with a partially horizontally splayed out rim, grooved at the top, and further distinguished by two ribs on the upper part of the shoulder. Of medium fabric, it is treated externally with a red slip which also runs up to the rim-portion on the inside. From a late level of Period II.

Type 51. Vase of all-black ware with an out-turned thickened rim and a bulged body. Of medium fabric, it is treated both externally and internally with a black slip. From a pit ascribable to an early level of Period II.

Type 52. Vase of red ware with a slightly out-curved triangular thickened rim and a convex shoulder, grooved at two places. Of medium fabric, which has partly burnt smoky grey in the section and is indifferently fired, it is treated externally with a red slip which also extends to the rim-portion on the inside. From a late level of Period II.

Type 53. Vase of all-black ware with a vertical bud-shaped rim and a grooved shoulder. Of medium fabric, it is treated both externally and internally with a black slip and is also polished. From a late level of Period II.

Type 54. Vase of all-black ware with an out-turned thickened rim and a convex multi-grooved shoulder. Of medium fabric, it is treated both externally and internally with a black slip and is also polished. The type is fairly common in this Period. From a late level of Period II.

Type 55. Vase of mottled red ware with a short horizontally splayed out featureless rim, a vertical concave neck, a convex shoulder and a rounded body. Of medium fabric, which has partly burnt smoky black in the mid-portion of the section, it is treated externally with a thin slip which also runs up to the rim portion on the inside. From an early level of Peroid II.

D. Period III

(1) *The Russet-coated Painted Ware*

This well-defined ware, previously namd as Āndhra painted ware, has been often, though vaguely indeed, used as a cultural label from its general association with

[1] *Subbarao, op. cit.* (1948), p. 12, pl. V, *V.*
[2] *Ancient India*, no. 4, *op. cit.*, p. 235, fig. 25, *T120.*

Sātavāhana coins and the region of concentration on sites lying in Andhradeśa notably between the parallels of 13° and 17° North from sea to sea.[1] The term, in the light of the available evidence, seems to be largely a misnomer. The Āndhras were known to be living on the outskirts of the Aryan settlement several centuries before the commencement of the Christian era.[2] The qualifying epithet Āndhra for a ceramic industry which is 'known to have been in vogue during the first and second centuries A.D.'[3] is contentious and would be confusing to students of history, since it presupposes a relationship between this ware and the Āndhras (more specifically the Sātavāhanas), of whom both the chronology and extent of empire are at variance with the date and distribution of the ware,[4] which does not occur in a large portion of the old Āndhra empire in central and western India. The modern connotation of the term Andhra would also preclude the usage of such a nomenclature in this context. Furthermore, recent field-work has revealed the existence of other painted ceramic industries of different Periods in the same geographical limits. In the south, notably in the Coimbatore and Cochin regions, a cognate industry obviously similar in fabric and having curvilinear instead of rectilinear decorations is associated with the megaliths.[5] The ware should more precisely be designated, therefore, as the 'Russet-coated Painted Ware' from its distinctive fabric and the style and technique of painting.

The Ware, which is invariably potted on a fast wheel, is represented both in the red-slipped ware and the Black-and-red Ware, the latter being a result of the inverted firing technique seemingly borrowed from the preceding Period. Some of the pots show complete black inside and black-and-red outside, with the black confined to the base-portion alone. This would mean that the pots, instead of being placed in an inverted position were stacked one above the other in the kiln, whereby the portion oxidized was only the exterior of the sides resulting in a red colour, while the interior and the underside turned black under reducing conditions. The Ware is apparently also salt-glazed. The distinctive features of this pottery is the wealth of linear patterns essentially rectilinear or criss-cross, the range of patterns being fairly varied. Other designs include radiating lines, rows of dots, verticals alternating with dots, frond-like strokes, etc. From the published report[6] of the Archaeological Chemist, it is seen that the designs were first executed with a thin sloppy paste of kaolin or lime and thereafter coated with a russet-coloured wash prepared out of red ochre. The technique of painting is therefore essentially underslip. A single instance of a similar design trailed in white under an apparently black slip has been noticed at Kopbal,[7] 54 miles to the south-west of Maski in the same Raichur District.

[1] *Ancient India*, no. 4, *op. cit.*, pp. 308-10 and fig. 52.

[2] The earliest mention of the Andhras is in the *Aitareya Brāhmaṇa* as one of the south Indian tribes (N. P. Chakravarti, 'The Minor Rock edicts of Asoka and some connected problems', *Ancient India*, no. 4, pp. 19-20).

[3] *Ancient India*, no. 4, *op. cit.*, p. 308.

[4] Barrett, *op. cit.*, pp. 11-20 and 19 n.

[5] M. Seshadri, 'New light on megalithic dating in India', paper read before the Archaeology Section of the All-India Oriental Conference, December 1955. It is, however, immature to equate chronologically both the industries, viz. the one with curvilinear designs and largely associated with megalithic burials and the other with rectilinear designs, occurring in association with Sātavāhana and Roman coins as also the well-known Rouletted Ware. The latter assemblage is thus firmly dated to *circa* first-second century A.D., while the former, on the basis of the Eran coin found in its association at Sulur, is ascribable to *circa* third or second century B.C.

[6] *Ancient India*, no. 4, *op. cit.*, p. 237 n.

[7] Author's own collection.

The commonest shapes in this typically painted industry are the dish, generally with a beaked rim, and partially straight-sided bowl. The latter, unlike that of the megalithic ware, have sometimes a disc-base. Painted designs, however, appear on some vases with thicker fabric as well (pl. XXI).

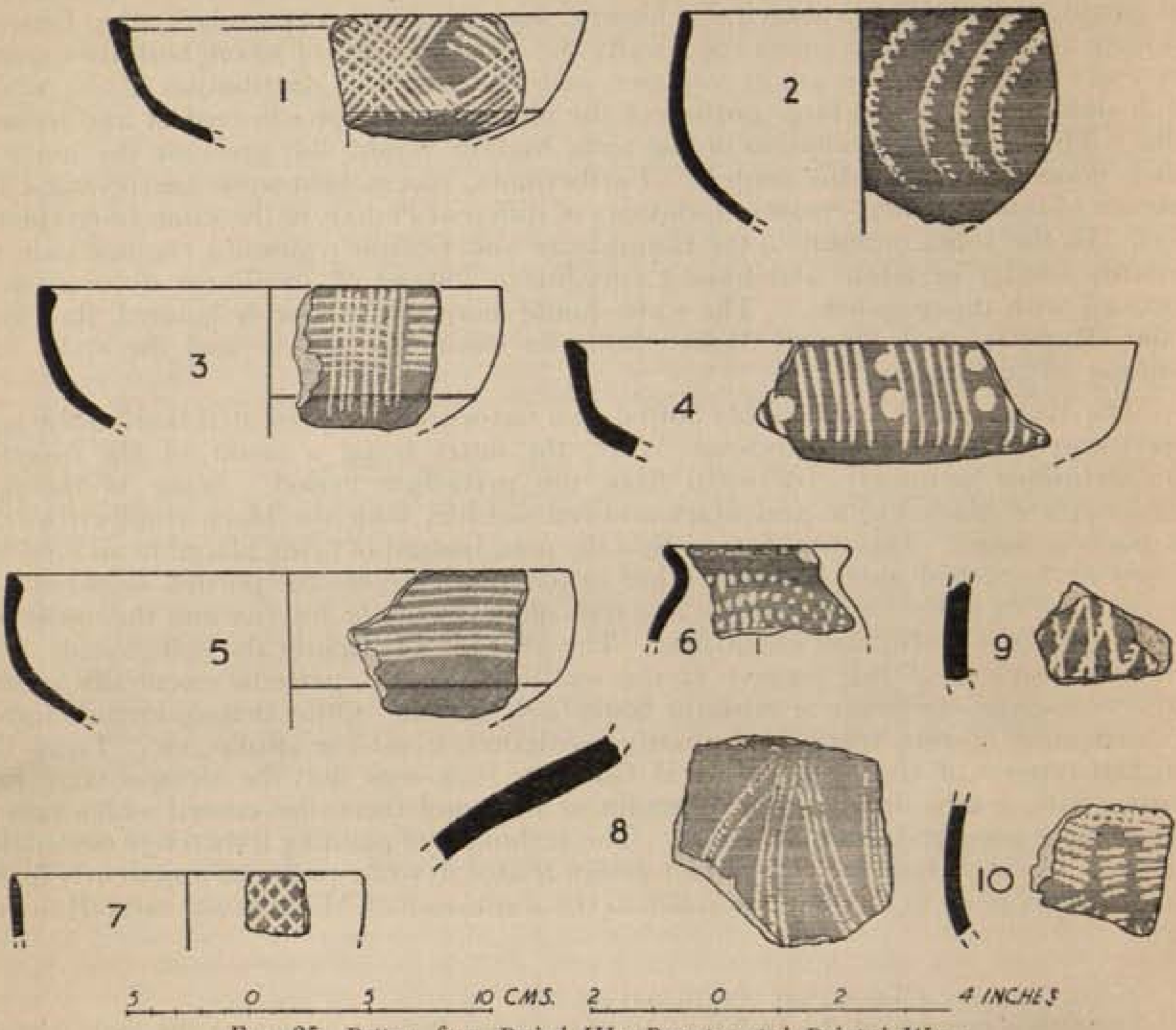


Fig. 25. *Pottery from Period III: Russet-coated Painted Ware*

As has already been demonstrated,[1] this Ware has been securely dated to *circa* first-third centuries A.D. by its stratigraphic association with Roman denarii, Śātavāhana coins and the firmly-dated Rouletted Ware.

The following series illustrates the range of patterns and forms available at Maski. Of these, nos. 1-5, and 7-9 are parallelled at Brahmagiri and Chandravalli.[2]

[1] *Ancient India*, no. 4, *op. cit.*, p. 200.
[2] *Ibid.*, p. 238, fig. 27, and pls. CXII and CXXIV.

Pls. XX B and XXI

1. Rim of type 1 (fig. 25), painted with criss-cross pattern. From an early level of Period III.

2. Rim-fragment of a partially straight-sided bowl of Black-and-red Ware, painted with a criss-cross pattern. From a mid-level of Period III.

3. Rim of type 2 (fig. 25), painted with groups of indented arcs. From a mid-level of Period III.

4. Rim of type 3 (fig. 25), painted with a chequer pattern of horizontal and vertical rows. From an early level of Period III.

5. Rim of type 4 (fig. 25), painted with groups of vertical strokes interspersed with thick dots. From the same level as above.

6. Rim of a bowl of Black-and-red Ware, painted with groups of oblique lines. From an unstratified deposit belonging to Period III.

7. Rim of type 5 (fig. 25), painted with a group of seven horizontal lines. From the same level as above.

8. Rim of type 6 (fig. 25), painted with rows of dots on the shoulder. From an early level of Period III.

9. Rim of type 7 (fig. 25), painted with a small lattice pattern. From the latest level of Period III.

10. Rim of a bowl of Black-and-red Ware, painted with a criss-cross pattern. From a mid-level of Period III.

11. Sherd of red ware, painted with rows of oblique lines. From an early level of Period III.

12. Sherd of type 8 (fig. 25), painted with rows of radiating dots. From a mid-level of Period III.

13. Rim of a dish of Black-and-red Ware, painted with a thick band. From a mid-level of Period III.

14. Rim of a bowl of Black-and-red Ware, painted with vertical lines. From a mid-level of Period III.

15. Sherd of type 9 (fig. 25), painted with a trellis pattern of jagged lines. From a mid-level of Period III.

16. Sherd of red ware, painted with dots and dashes. From an early level of Period III.

17. Sherd, painted with a lattice pattern. From an early level of Period III.

18. Sherd of type 10 (fig. 25), painted with groups of horizontal dashes. From a late level of Period III.

19. Vase of red ware, painted all over with indented lines forming a continuous chevron pattern. Surface-collection.

Fig. 25

Type 1. Dish of Black-and-red Ware with a vertical internally thickened and obliquely cut rim and sides narrowing to a sagger base. It is painted on the outside in criss-cross pattern. Of fine fabric, it is treated with a slip which has burnt black-and-red in the characteristic manner. From a late level of Period III. Also pl. XX B, *1*.

Type 2. Partially straight-sided bowl of Black-and-red Ware with a vertical featureless rim and convex sides. It is painted on the outside with groups of indented arcs. Of fine fabric, it is treated both externally and internally with a slip which has burnt black inside and black-and-red outside with the black confined to the underside and is also salt-glazed. From a mid-level of Period III. Also pl. XX B, *3*.

Type 3. Dish of Black-and-red Ware with a vertical internally cut rim, a basal groove and a convex base. It is painted with a chequer pattern of horizontal and vertical strokes. Of the same fabric as above. From an early level of Period III. Also pl. XX B, *4*.

Type 4. Dish of Black-and-red Ware with a little more obliquely cut rim than the preceding type and having tapering sides. It is painted with groups of vertical strokes interspersed with thick dots. From the same level as above. Also pl. XX B, *5*.

Type 5. Dish of Black-and-red Ware with the same rim and profile as no. 3. It is painted with a group of seven horizontal strokes. Of the same fabric as above, with the red showing a chocolate tint. From an unstratified deposit belonging to Period III. Also pl. XX B, *7*.

Type 6. Vase of red ware with an out-turned featureless rim and a convex shoulder. It is painted with rows of unequal dots on the shoulder. Of fine fabric, which has burnt smoky black in the mid-section, it is treated on the outside with a russet-coloured slip which also runs upto the neck-portion on the inside. From an early level of Period III. Also pl. XX B, *8*.

Type 7. Bowl of Black-and-red Ware with a vertical internally thinned rim. It is painted with small lattice pattern. From the latest level of Period III. Also pl. XX B, *9*.

Type 8. Fragment of a vase of red ware, painted with radiating rows of beads. Of medium fabric, it is treated on the outside with a chocolate slip. From a mid-level of Period III. Also pl. XX B, *12*.

Type 9. Fragment of a vase of red ware, painted with a trellis pattern of jagged lines. Of medium fabric, which has burnt smoky dark in the section, it is treated only externally with a red slip. From a mid-level of Period III. Also pl. XX B, *15*.

Type 10. Fragment of a vase of red ware, painted with groups of horizontal dashes. Of the same fabric as above. From a late level of Period III. Also pl. XX B, *18*.

(ii) *Other wares*

The pottery from this Period is supplemented and at the same time influenced by the megalithic ware of the preceding Period. The inverted firing technique producing the black-and-red effect, along with the predominant bowl- and dish-forms are a recognizable legacy. Other shapes common to both the Periods include the lid with a flanged waist (fig. 26, *7a*) and the basin with a nail-head or a variant rim (fig. 26, *14*). The fabric, as a rule, is medium showing sand and grit particles in the paste. Some of the characteristic traits in the fabric are, however, sufficiently marked to be used as safe criteria of their age.

The black-and-red ware of this Period is normally of thick section, almost always salt-glazed, and lacks the distinctive feel of the megalithic ware. Unlike the latter, it displays in some cases black-and-red both on the outside and inside with the red confined to the upper half on the outside and only the rim-portion on the inside (above, p. 15). Mostly this red tends towards a chocolate tint. The characteristic shine of the megalithic Ware is equally absent from the all-black ware of this Period.

The greater mass of the pottery, however, falls into two groups, both of which are wheel-turned, absorbent in texture and essentially plain in treatment.

(a) Dull red ware, occasionally treated with a red slip. Because of the gritty paste, the ware has in most cases burnt darkish grey or smoky in the sections and does not seem to be uniformly fired. The commonest shapes include the bowl (fig. 26, *1a*), the shallow dish (fig. 26, *3*) and the lid with a flanged waist (fig. 26, *7*). A noteworthy type in this ware is the sprinkler with a funnel- or bottle-neck (fig. 26, *17*). The type is widely distributed in western and northern India and is found in strata ascribable to the early centuries of the Christian era.[1] The illustrated examples from Maski are of an inferior fabric and lack the distinctive polish. Fragmentary spouts are also available but are not published here.

(b) Darkish grey ware of related fabric which is represented usually in basin-forms (fig. 26, *14*).

Of these two groups, the former constitutes the majority.

A notable ceramic assignable to the same Period but quite distinct in its fabric is the Rouletted Ware, the occurrence of which at this site has already been reported upon in an earlier issue of *Ancient India*.[2] In the present excavation, however, no sherds bearing rouletted designs were recovered, the collection being confined only to beaked rim-fragments of patent fabric.

The following list represents the range of types.

Figs. 26 and 27

Type 1. Bowl of Black-and-red Ware with a vertical sharpened rim. Of medium fabric, it is treated with a slip, which has burnt black-and-red both externally and internally with red confined to the rim-portion on the inside and to the upper half on the outside and is also salt-glazed. From an early level of Period III. As already pointed out (above, p. 15), this type of black-and-red ware is characteristic of this Period. *Variant 1a*, of red ware, differs from the above in being deeper and having straighter sides. Of medium fabric, which has partly burnt black in the section, it is treated with a red slip both externally and internally. From a mid-level of Period III. *Variant 1b*, of the same ware as the main type, differs from it in having an internally bevelled rim. From an early level of Period III. Analogies come from Brahmagiri.[3] *Variant 1c*, of the same ware as above, differs from it in having tapering sides. From an early level of Period III. *Variant 1d*, of red ware, differs from the main type in being internally sharpened and having a sagger base. Of medium fabric, it is treated both externally and internally with a red slip. From an early level of Period III. *Variant 1e*, of dull black-and-red ware, differs from the main type in having tapering and weakly corrugated sides. Of medium fabric, it is treated with a dull red slip, which has burnt black inside and red outside. From an unstratified deposit of Period III.

Type 2. Bowl of dull grey ware with a slightly out-turned featureless rim, a weakly carinated waist and a presumably convex base. Of medium fabric, it is treated with a wash. From an early level of Period III.

Type 3. Dish of dull red ware with a vertical thickened rim and a presumably sagger base. Of coarse fabric, which has partly burnt black in the section, it is devoid of any slip or wash. From

[1] B. Subbarao, *Baroda Through the Ages* (Baroda, 1953), pp. 56-58 and fig. 24; also *Ancient India*, nos. 10 and 11, *op. cit.*, p. 64, fig. 20, *XV*.

[2] *Ancient India*, no. 4, *op. cit.*, p. 308.

[3] *Ibid.*, p. 240, fig. 28, *T159*.

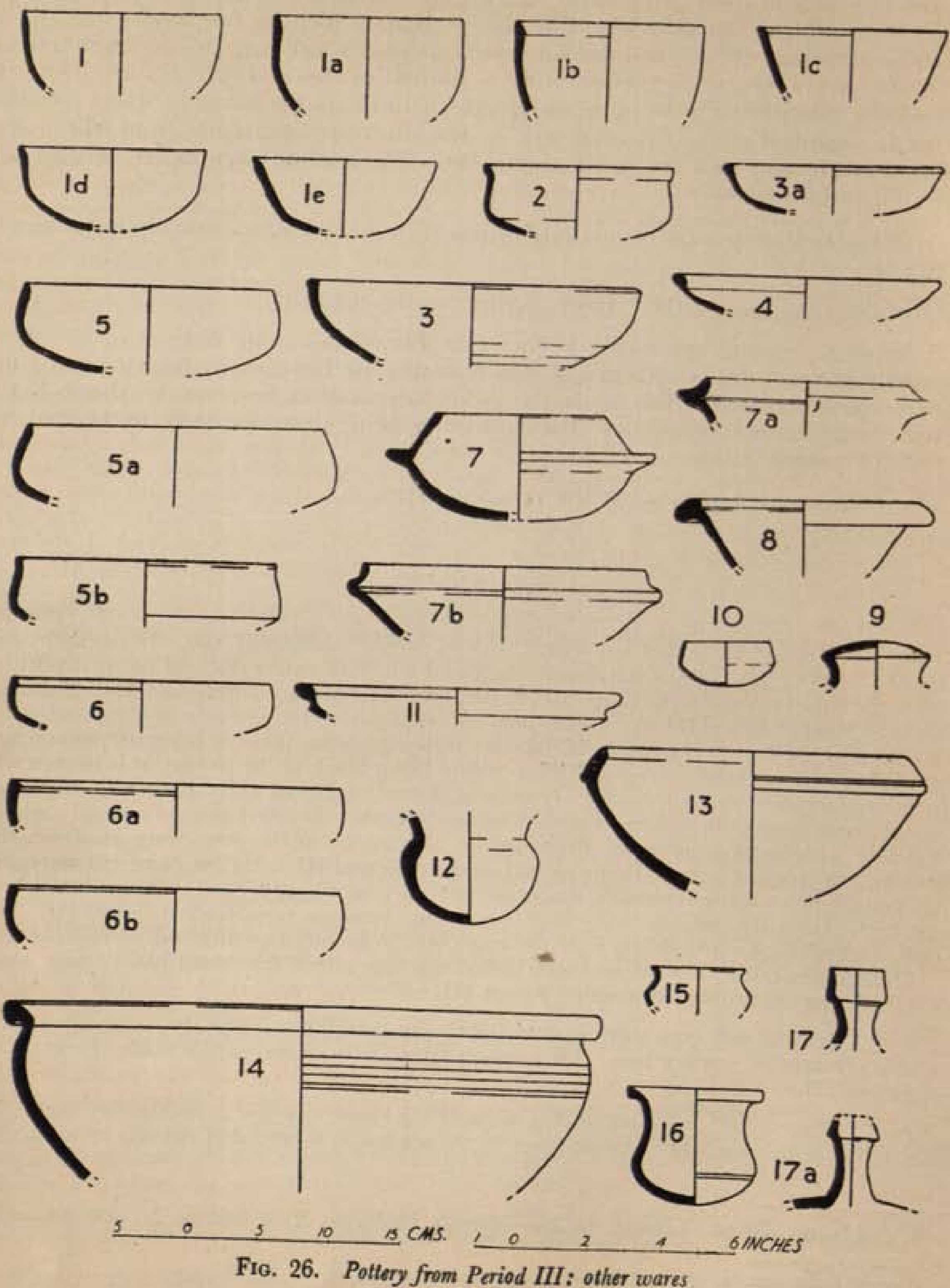


FIG. 26. *Pottery from Period III: other wares*

an early level of Period III. *Variant 3a*, of drab-coloured ware, differs from the main type in having a more thickened rim and a convex base in addition to its being shallower. Of medium fabric, it is devoid of any slip or wash. From an early level of Period III.

Type 4. Shallow dish of drab-coloured ware, with an internally oval-collared rim and a presumably convex base. Of medium fabric, indifferently fired, it is devoid of any slip or wash. From an early level of Period III.

Type 5. Dish of Black-and-red Ware with an almost vertical featureless rim, incurved sides and a convex base. Of comparatively fine fabric, it is treated with a slip which has burnt black inside and black-and-red outside with black confined to the rim in the characteristic manner and is also salt-glazed. It is a survival of the megalithic form and fabric and confirms the overlap of the two cultures. From an early level of Period III. *Variant 5a*, of Black-and-red Ware, differs from the above in having a slightly closing rim and a weakly carinated waist. Of the same fabric as above. From an early level of Period III. *Variant 5b*, of Black-and-red Ware, differs from the main type in having a little constriction below the rim. Of the same fabric as above. From an early level of Period III.

Type 6. Dish of black ware with an internally beaked rim and convex sides. Of comparatively fine fabric, it is treated with a black slip and is also salt-glazed. From a mid-level of Period III. Analogies occur at Brahmagiri and Chandravalli.[1] *Variant 6a*, of Black-and-red Ware, differs from the above in having straighter sides and a very blunt beaked rim. Of fine fabric, it is treated with a coat of kaolin on the outside under a slip, which has burnt black inside and russet outside, and is also salt-glazed. From a late level of Period III. *Variant 6b*, of Black-and-red Ware, differs from the main type in having a merely bevelled rim. Of fine fabric, it is treated with a slip which has burnt black inside and black-and-red outside with the red tending to be sepia. Identical in fabric to the typical dishes to which rouletted patterns are sometimes applied. From a mid-level of Period III.

Type 7. Lid of red ware with a closing featureless rim and a flanged waist. Of medium fabric, which has burnt black in the section, it is treated both externally and internally with a red slip. From a pit ascribable to a late level of Period III. Roughly parallel shapes occur at Brahmagiri, Chandravalli[2] and Śiśupālgarh.[3] *Variant 7a*, of red ware, differs from the above in having a short vertical rim and an internally grooved waist. Comparable with type 27a from Period II (fig. 23). Of medium fabric, which has burnt black in the section, it is treated externally with a red slip. From a late level of Period III. *Variant 7b*, of red ware, lacks the prominent flange of the above type and has a thinner section. Of medium fabric, it is treated with a slip on the rim-portion only. From an early level of Period III.

Type 8. Bowl-*cum*-lid of dull red ware with a nail-head rim and tapering sides. Of medium fabric, indifferently fired, it is treated with a thin slip on the inside only. From an early level of Period III.

Type 9. Fragment of a lid of black ware. Of medium fabric, it is treated externally with a polished black slip. From an early level of Period III.

Type 10. Miniature bowl of dull grey ware with a thin sharpened rim and a flattened sagger base. Of medium fabric, it is devoid of any slip or wash. From an early level of Period III.

Type 11. Dish of grey ware with a nail head internally undercut rim and a carinated waist. Of medium fabric, it is treated with a greyish black slip. From an early level of Period III. Roughly similar dishes occur at Brahmagiri.[4]

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[1] *Ancient India*, no. 4, *op. cit.*, p. 240, fig. 28, *T144* and p. 282, fig. 47, *A17*.

[2] *Ibid.*, p. 240, fig. 28, *T*162; p. 283, fig. 48, *A40*.

[3] *Ancient India*, no. 5, *op. cit.*, p. 83, fig. 7, *29*.

[4] *Ancient India*, no. 4, *op. cit.*, p. 240, fig. 28, *T153*.

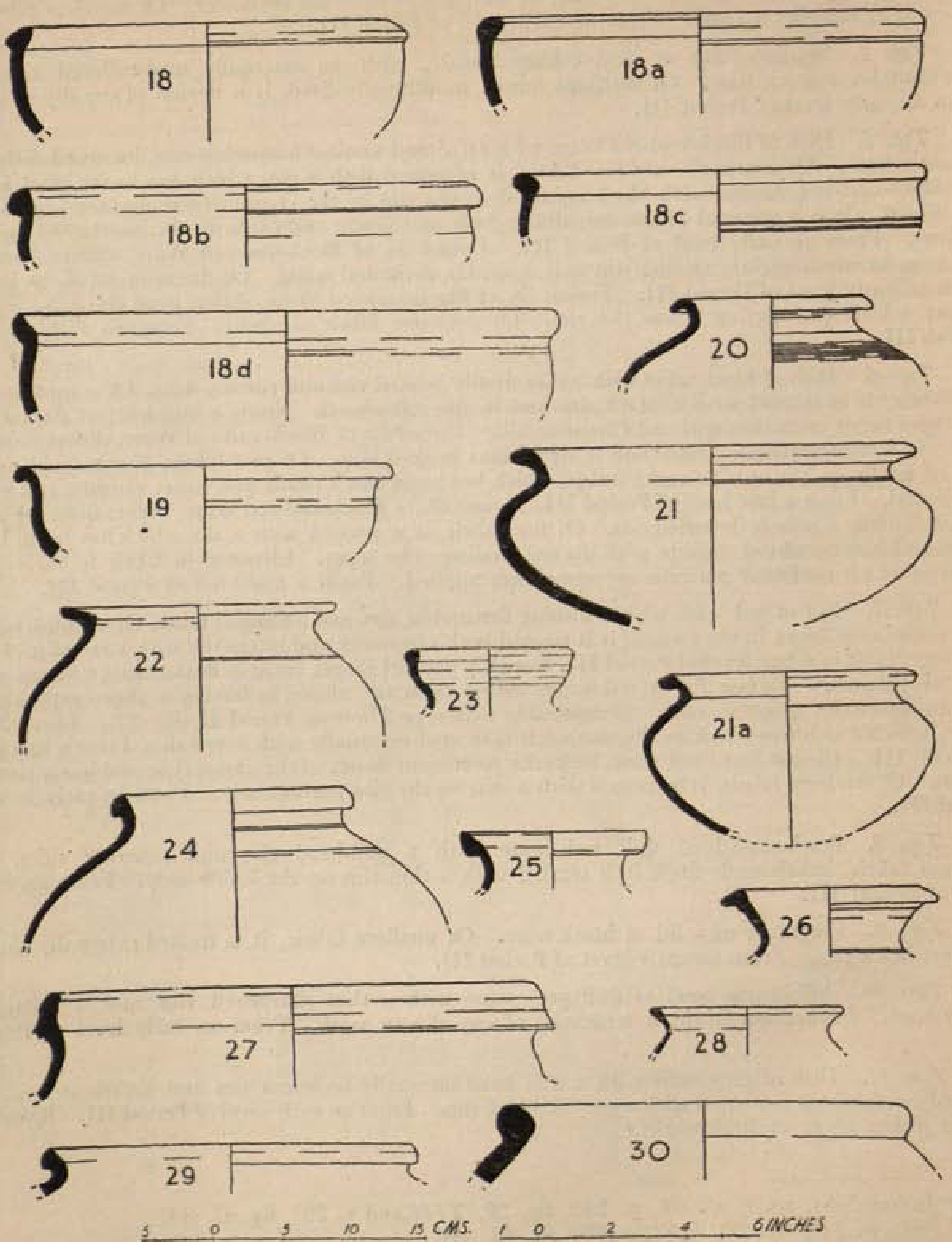


FIG. 27. *Pottery from Period III: other wares*

Type 12. Round-bottomed vase of dull grey ware with a slightly ledged shoulder. Of coarse fabric, badly fired, it seems to have been treated with a reserved slip down to the shoulder only. From a pit ascribable to a late level of Period III. Analogues exist at Brahmagiri.[1]

Type 13. Basin of dull grey ware with a closing featureless rim which is further distinguished by a cordon on the outside. Of coarse fabric, indifferently fired, it is treated both externally and internally with a slip. The underside of the pot is all soot-affected and may therefore have served as a cooking vessel. From an early level of Period III. Analogies come from Chandravalli.[2]

Type 14. Basin of grey ware with an out-turned nail-head rim and mutli-grooved shoulder. Of medium fabric, it is treated with a darkish grey slip and is also burnished. This is a characteristic type of the Period and occurs abundantly in all the levels. From an early level of Period III. Analogies come from Chandravalli.[3]

Type 15. Miniature vase of dull red ware with an out-curved featureless rim and a weakly carinated profile. Of medium fabric, it is treated externally with a thin dull-coloured slip. From an early level of Period III.

Type 16. Miniature vase of dull red ware with an out-curved externally thickened rim, a low girth and a rounded base. Of medium fabric, which has partly burnt black in the section due to indifferent firing, it seems to have been treated both externally and internally with a thin dull red slip. From an early level of Period III.

Type 17. Rim-fragment of the well-known sprinkler-form. Of medium fabric, it is treated externally with a red slip. From an early level of Period III. It is a very widespread type and occurs plentifully on sites and strata of early Christian era.[4] *Variant 17a*, of red ware, differs from the above in having a shorter rim, a longer neck and a square shoulder. Of medium fabric, which has burnt black in the section, it is treated externally with a red slip. From a pit ascribable to a late level of Period III.

Type 18. Basin of dull grey ware with an incurved externally cordoned rim and roughly vertical sides rounded towards the base. Of medium fabric, it is treated both externally and internally with a thin grey slip. From an early level of Period III. *Variant 18a*, of dull red ware, differs from the above in having a thickened rim. Of medium fabric, it is treated both externally and internally with a thin slip of dull red colour. From an early level of Period III. *Variant 18b*, of black ware, differs from the main type in having an externally round collared and undercut rim. Of medium fabric, it is treated both externally and internally with a black slip. From an early level of Period III. *Variant 18c*, of red ware, differs from the above in having a nail-head rim. Of medium fabric, it is treated both externally and internally with a red slip. From an early level of Period III. *Variant 18d*, of drab-coloured ware, differs from the main type in having an out-turned externally thickened rim. Of medium fabric, which has burnt greyish dark in the section, it is treated with a wash, From an early level of Period III.

Type 19. Basin of greyish chocolate ware with a short clubbed rim, ledged at the shoulder, and thickened lower part. Of medium fabric, it is treated with a slip which has burnt greyish chocolate. From a mid-level of Period III.

Type 20. Vase of red ware with a drooping featureless rim, a concave neck and a multi-grooved shoulder. Of comparatively fine fabric, it is treated externally with a red slip, which also extends to the neck-portion on the inside. From a mid-level of Period III. Roughly similar vases occur at Chandravalli.[5]

Type 21. Vase of dull red ware with a clubbed rim, a short concave neck and a squattish profile. Of medium fabric, it is treated externally with a slip which has burnt mottled red and greyish black.

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[1] *Ancient India*, no. 4, *op. cit.*, p. 240, fig. 28, *T168.*

[2] *Ibid.*, p. 282, fig. 47, *A34.*

[3] *Ibid.*, p. 283, fig. 48, *A39.*

[4] For distribution of this form in characteristic red polished fabric, cf. Subbarao, *op. cit.* (1953), pp. 56-58.

[5] *Ibid.*, p. 283, fig. 48, *A47.*

From a pit ascribable to a late level of Period III. Rough analogies occur at Chandravalli.[1] *Variant 21a*, of the same ware, differs from the above in having a rounded profile and is further distinguished by a weak rib on the shoulder. Of the same fabric as above. From a pit ascribable to the latest level of Period III.

Type 22. Vase of red ware with an almost horizontally splayed out featureless rim, a groove at the top and a convex shoulder. Of medium fabric, which has partly burnt red in the section, it is treated externally with a red slip. From a late level of Period III. A variant of the type occurs at Brahmagiri.[2]

Type 23. Fragment of a vase of red ware with an incurved internally thickened rim which is further distinguished by weak corrugation. Of medium fabric, it is treated both externally and internally with a red slip. From a mid-level of Period III.

Type 24. Vase of red ware with a slightly out-curved externally thickened undercut rim and a convex shoulder. Of medium fabric, which has partly burnt black in the mid-section, it is treated externally with a red slip, which also extends to the neck on the inside. From a pit ascribable to the latest level of Period III.

Type 25. Vase of red ware with an out-curved thickened vertically cut rim and a concave neck. Of medium fabric, it is treated externally with a slip. From an early level of Period III.

Type 26. Vase of dull red ware with an out-turned clubbed rim. Of medium fabric, it is treated only externally with a thin dull red slip. From the same level as no. 24 above.

Type 27. Vase of greyish chocolate ware with an incurved rim which is distinguished by a drooping flange on the outside. Of medium fabric, it is treated with a greyish chocolate slip. From an early level of Period III.

Type 28. Fragment of a vase of red ware with an out-turned internally thickened rim. Of medium fabric, it is treated externally with a red slip. From a mid-level of Period III.

Type 29. Fragment of a vase of red ware with an out-curved thickened rim and a short concave neck. Of medium fabric, it is treated externally with a red slip. From an early level of Period III.

Type 30. Fragment of a jar of red ware with a round-collared rim. Of coarse fabric, it is treated both externally and internally with a red slip. From a mid-level of Period III.

E. The Medieval Period

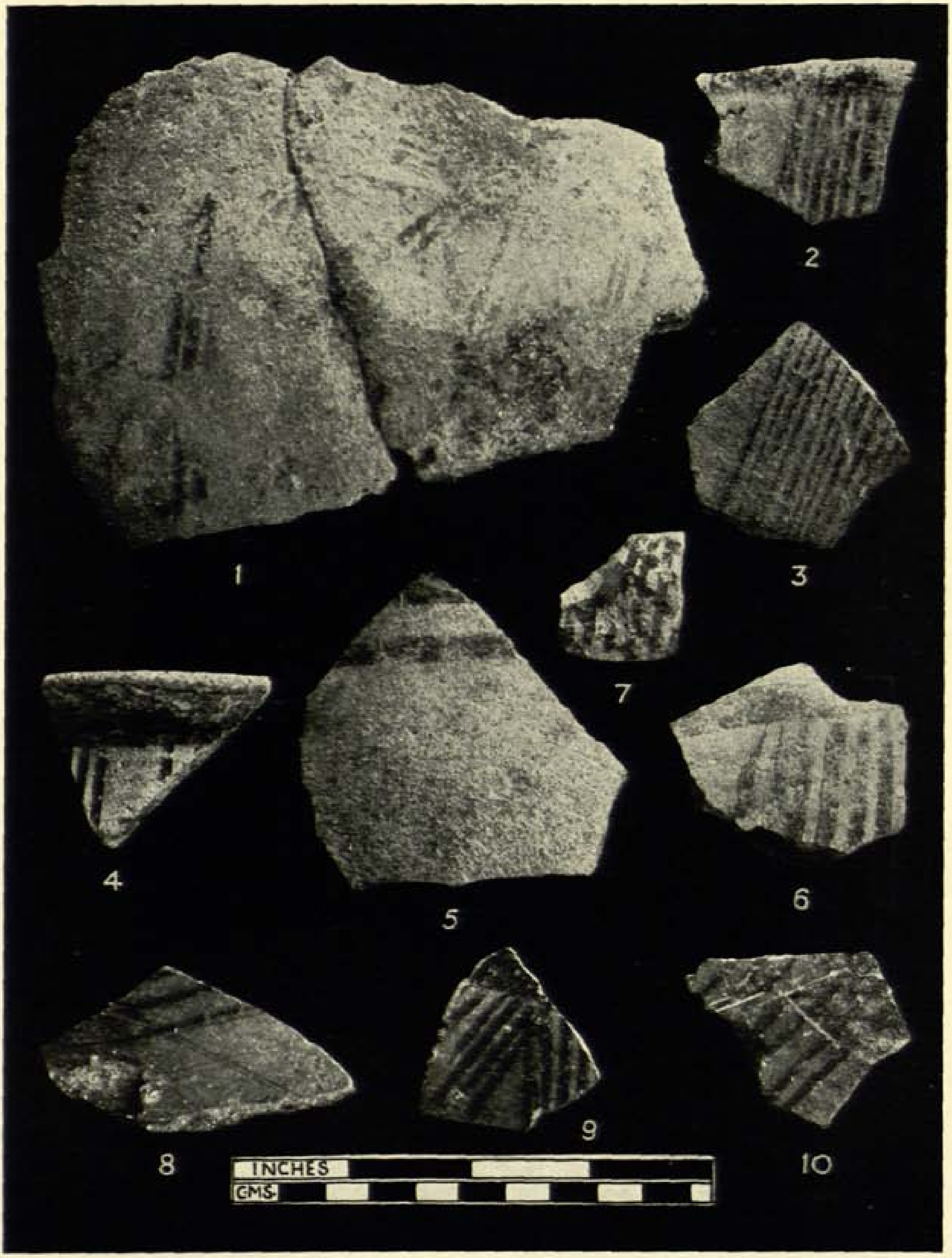
As already stated (above p. 26), cutting MSK-12 yielded evidence of a single-culture occupation ascribable to the medieval age (*circa* A. D. 1000-1600). The pottery from this site is entirely wheel-made and is characterized by its grey, sometimes mottled, burnished[3] surface and a medium, occasionally coarse, fabric. Mostly it is dressed with a thin slip which under reducing conditions of the kiln has burnt ashy. The pots are fairly absorbent and do not seem to have been fired at a high degree of temperature; nor is the paste well-prepared. The ware is quite distinctive showing predilection for multi-grooved shoulders and other stamped designs (pl. XXII). The range of shapes, however, is not very large and comprises the dish or platter, lid and vase. The last is of an absolutely utilitarian character, since the splayed out rim which affords an easy grip is a normal feature. It may be interesting to note that some of the platter-and lid-forms are still continued in the region.

From the quality and finish of the ware it is quite apparent that during this Period the ceramic art had lost the sophistication and with the monotony of shape and fabric was catering assumably to the needs of the poor alone. It is comprehensible that with man's

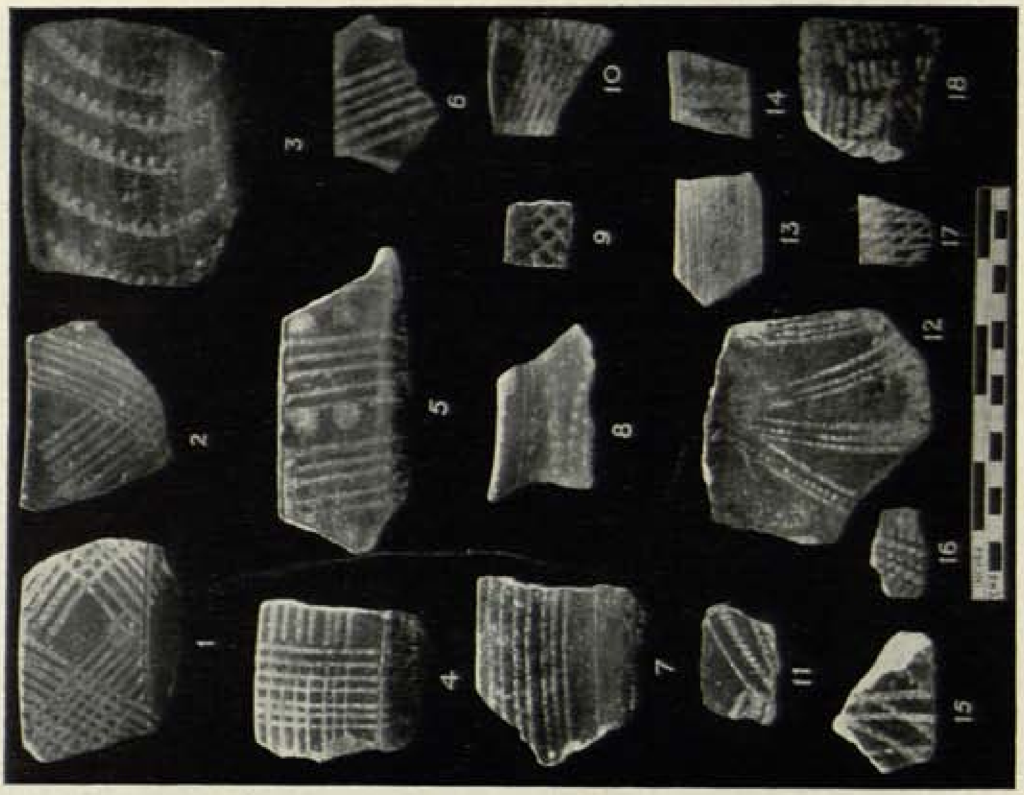
[1] *Ancient India*, no. 4, *op. cit.*, p. 283, fig. 48, *A46*.

[2] *Ibid.*, p. 241, fig. 29, *T173*.

[3] Modern potters in the area burnish grey pots with the addition of ash, and it is quite likely that the same method may have been followed by the earlier potters.



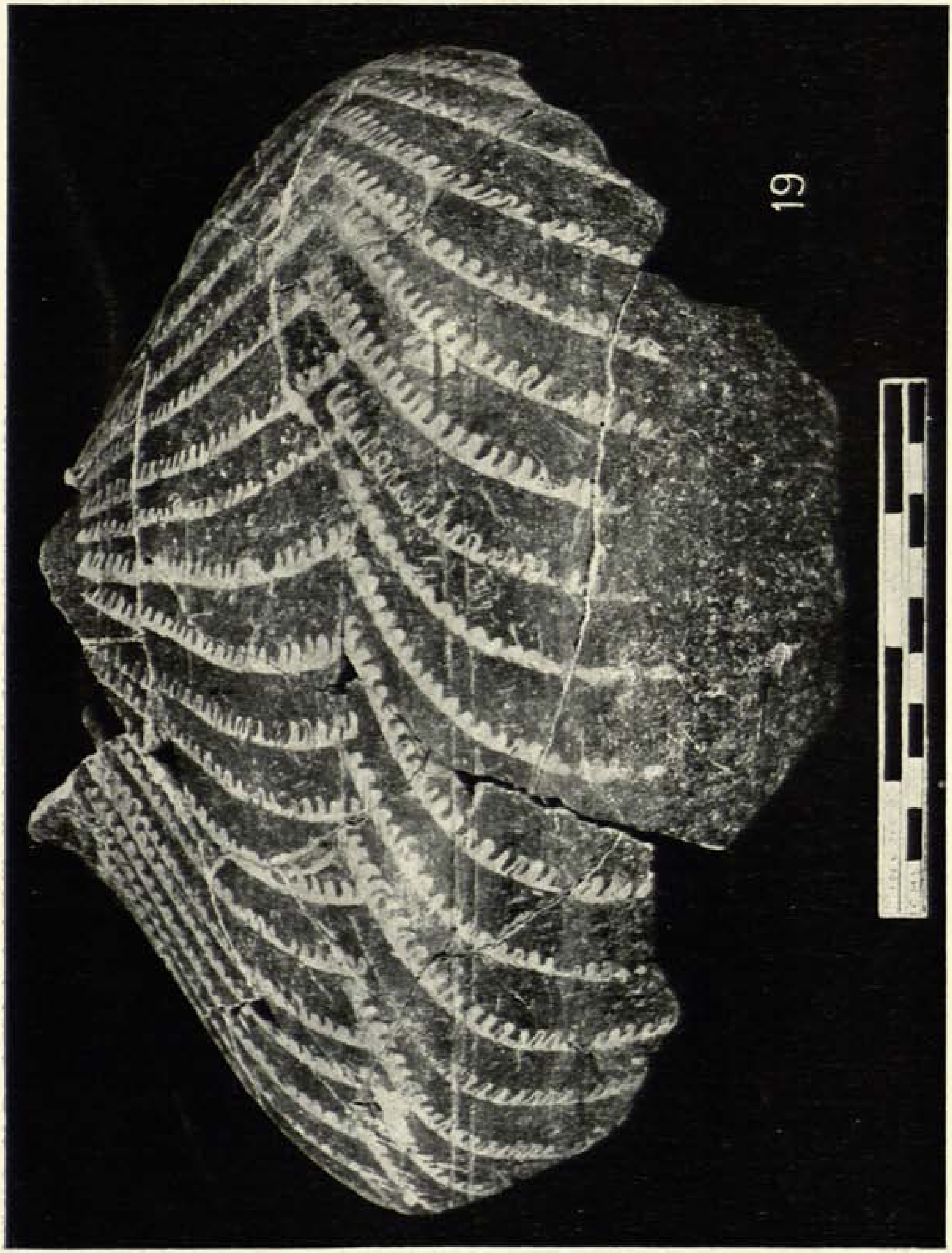
Painted pottery, Period I. See pages 38-40



B. *Russet-coated Painted Ware, Period III. See pages 72-76*

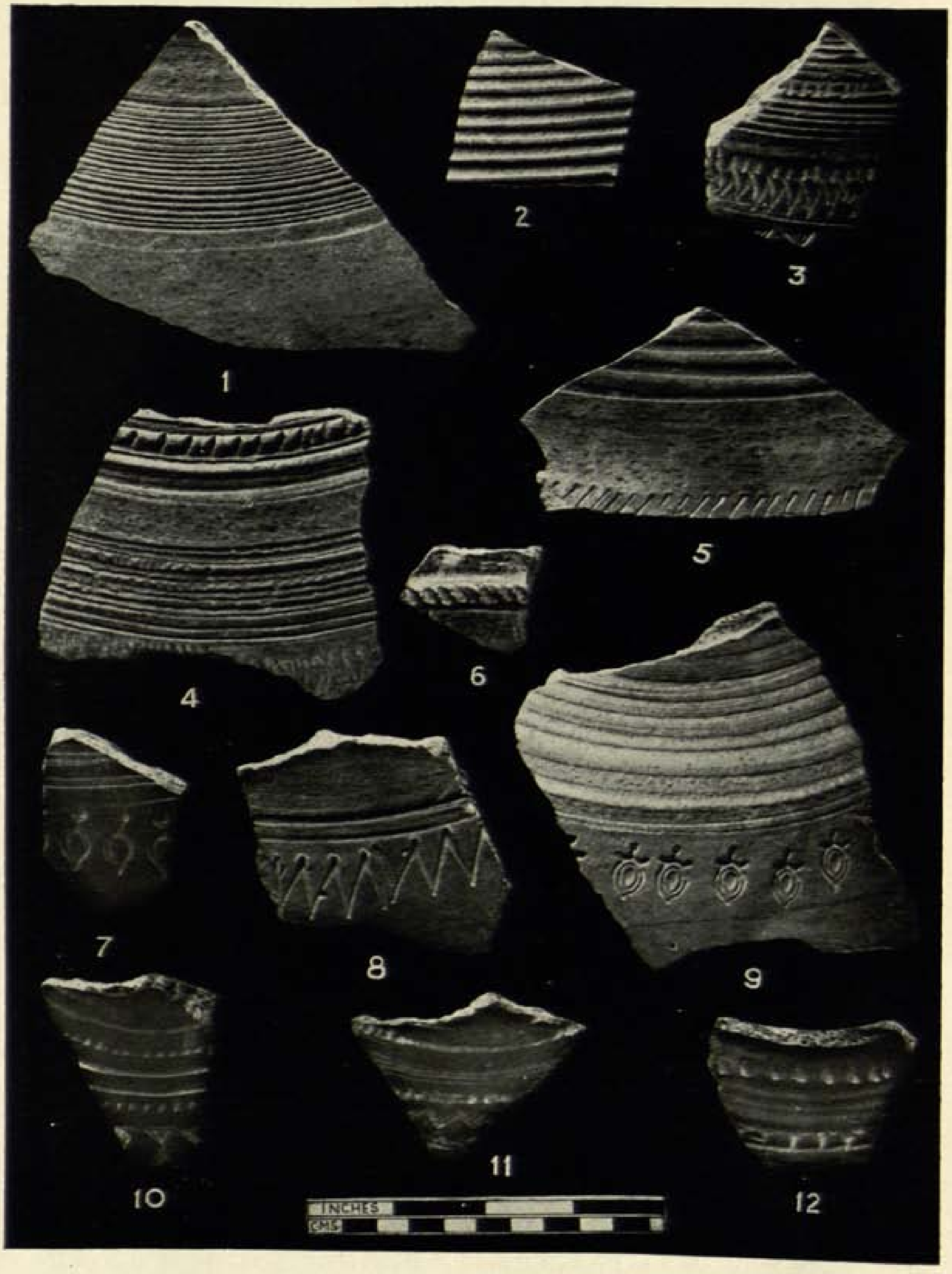


A. *Decorated pottery, Period I. See pages 40 and 49*



Russet-coated Painted Ware, surface. *See page 75*

To face page 83



Decorated Pottery, Medieval Period. See pages 82 and 85-86

increasing use of metals, the art of the potter deteriorated. That is why in the Medieval Period we have either a ware *de luxe* sometimes essentially for decorative or ornamental use or a very ordinary class of pottery to serve the needs of the poor who could not afford metal vessels.

Not much attention has so far been directed to classify the pottery of this Period, nor are there many excavated sites or a corpus of pottery of a comparable period available which can provide precise parallels. The pottery of Period V at Hastināpura[1] (*circa* eleventh-fifteenth centuries A.D.) betrays no similarity with this ware. The distribution of this grey ware is apparently confined to south India (including the Deccan), wherein the tradition of grey ware has persisted down to the present times as opposed to the red ware in north India. Hampi, the ruined capital of the Vijayanagara empire (A.D. 1336-1565) has yielded similar pottery.

Below are illustrated the outstanding types in this ware.

Fig. 28

Type 1. Dish of grey ware with a thickened rim, a weak groove at the top, tapering sides and a presumably sagger base. Of medium fabric, it is treated both externally and internally with a thin darkish grey slip. From an early level of the Period. *Variant 1a*, of the same fabric, differs in having a ridge at the junction of the sides and the base. From a pit ascribable to a late level of the Period.

Type 2. Dish-*cum*-lid of grey ware with a thickened internally undercut rim, a ridged profile and a convex base. Of medium fabric, it is treated externally with a smoky grey slip. From the same level as no. 1a above *Variant 2a*, of the same fabric, differs from the above in having a slightly inturned pointed rim and straighter sides, weakly grooved internally on the junction. From a pit ascribable to a late level of the Period. *Variant 2b* differs from the main type in having an out-curved featureless rim. From the same level as above.

Type 3. Bowl of grey ware with a featureless rim and convex sides. Of medium fabric, it is treated both externally and internally with an ashy grey slip. From a pit ascribable to the latest level of the Period.

Type 4. Miniature vase of grey ware with an out-curved featurless rim and a concave neck. Of medium fabric, it is devoid of any slip or wash. From the same level as no. 2 above. *Variant 4a*, of grey ware, differs from the above in having a roughly cylindrical and weakly grooved profile. Of finer fabric, it is treated externally with a darkish grey slip. From the same level as no. 2a above. *Variant 4b*, of lighter grey ware, differs from the above in having a slightly thickened rim and a single groove at the shoulder. Of medium fabric, it is treated presumably with a mere wash. From the same level as above.

Type 5. Vase of grey ware with a splayed out externally groove-collared rim, and an oblique multi-grooved shoulder. Of medium fabric, it is treated both externally and internally with an ashy grey thin slip. From the same level as above.

Type 6. Vase of grey ware with a splayed out thickened rim, a groove at the top, a sharply carinated neck and a grooved convex shoulder. Of medium fabric, it is treated externally with a smoky grey slip. From the same level as above.

Type 7. Vase of grey are with an out-curved featureless rim and a rippled shoulder. Of medium fabric, it is devoid of any slip or wash. From the same level as above.

Type 8. Vase of grey ware with an out-turned externally groove-collared rim and grooves on a convex shoulder. Of medium fabric, it is treated externally with a smoky grey slip. From a pit ascribable to a late level of the Period.

[1] *Ancient India*, nos. 10 and 11, *op. cit.*, pp. 71 ff.

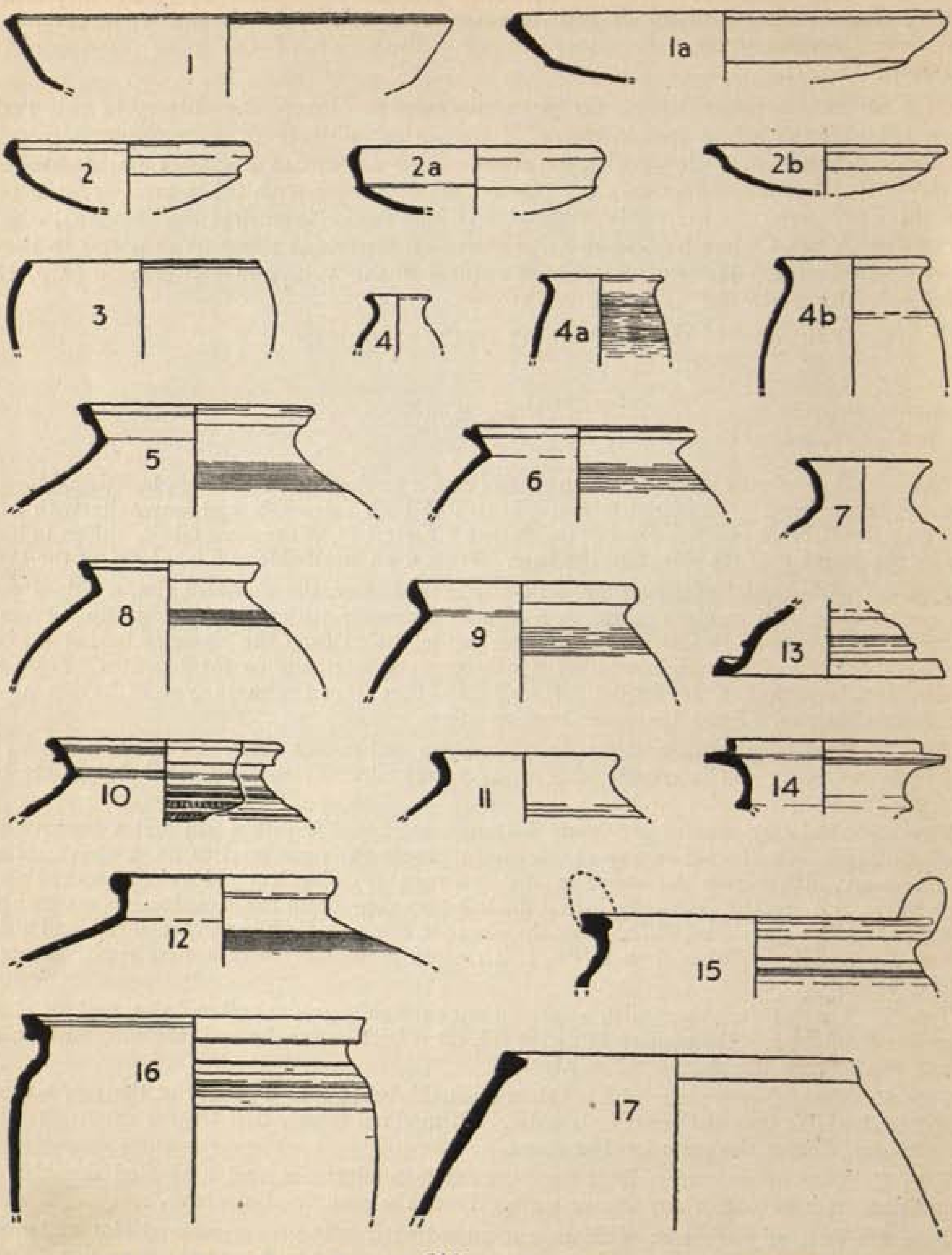


FIG. 28. *Pottery from the Medieval Period*

Type 9. Vase of grey ware with an out-turned externally thickened rim, a carinated neck and an oblique grooved shoulder. Of medium fabric, it is treated externally with a smoky grey slip. From the same level as above.

Type 10. Vase of grey ware with a splayed out externally thickened and ridged rim, a carinated neck and a corrugated shoulder which is further distinguished by finger-nail incision. Of medium fabric, it is treated externally with an ashy grey slip. From a late level of the Period.

Type 11. Vase of grey ware with an out-curved featureless rim and an oblique rippled shoulder. Of coarse fabric, it is treated with a smoky grey slip on the outside. From an early level of the Period.

Type 12. Vase of grey ware with a vertical thickened rim and an oblique multi-grooved shoulder. Of medium fabric, which has burnt darkish grey in the mid-section, it is treated externally with an ashy grey slip. From the latest level of the Period.

Type 13. Lid of darkish grey ware with an out-curved thickened rim-base and a ridged profile. Of medium fabric, it is apparently devoid of any slip or wash. From a mid-level of the Period.

Type 14. Lid of darkish grey ware with a short vertical flanged lip, ridged at the waist and a presumably rounded base. Of medium fabric, it is treated externally with a darkish grey slip. From a late level of the Period.

Type 15. Vase of grey ware with an out-turned bud-shaped rim, weakly ledged below the neck and having lug-handles at the rim-top. Of coarse fabric, indifferently fired, it is devoid of any wash or slip. From the same level as above.

Type 16. Vase of dull grey ware with an out-turned bud-shaped rim, internally grooved, a rippled shoulder and a cylindrical body. Of medium fabric, it is devoid of any slip or wash. From a late level of the Period.

Type 17. Vase of drab-coloured ware with a closing thickened rim. Of coarse fabric, it is devoid of any slip or wash. From a mid-level of the Period.

Pl. XXII

1. Fragment of a vase of grey ware decorated with weak multi-grooved shoulder. From a pit ascribable to the latest level of the Period.

2. Fragment of a vase of grey ware decorated with bold multi-grooved shoulder. From a late level of the Period.

3. Fragment of a vase of grey ware decorated on the shoulder with multiple grooves above a panel of zigzags. From the same level as above.

4. Fragment of a vase of grey ware decorated on the shoulder with multiple grooves below a panel of finger-nail incisions. From the same level as above.

5. Fragment of a vase of grey ware, indifferently fired, decorated with a row of oblique slashes below a boldly grooved shoulder. From a pit ascribable to a mid-level of the Period.

6. Fragment of a vase of darkish grey ware decorated with an applied band of finger-nail tips. From the same level as above.

7. Fragment of a vase of darkish grey ware decorated with a row of stamped stylized leaves below a grooved shoulder. From the same level as no. 2 above.

8. Fragment of a vase of grey ware decorated with incised zigzags below two grooves on the shoulder. From the same level as above.

9. Fragment of a vase of ash grey ware decorated with a row of stamped stylized mango-pattern below a multi-grooved shoulder. From the same level as above.

10. Fragment of a vase of black-slipped ware decorated on the shoulder with multiple grooves relieved by stamped dots and a panel of opposite triangles. From a mid-level of the Period.

11. Fragment of vase of darkish grey ware decorated on the shoulder with grooves interspersed with finger-nail incisions above stamped opposite triangles. From the same level as no. 1 above.

12. Fragment of a vase of grey ware, indifferently fired, decorated on the shoulder with two rows of incised slashes. From the latest level of the Period.

F. Graffiti on the megalithic pottery

The precise meanings of the graffiti occurring on megalithic pottery are still problematical. One thing, however, is certain that they were invariably scratched or incised into the slip or any other surface-treatment after firing of the pot, suggestive of their being purposeful and intended perhaps for a particular occasion. Besides, they are found on the pottery of all the three fabrics associated with the megalithic culture—the Black-and-red Ware, the all-black ware and the red ware including the wavy line painted ware—and on all the basic forms met with in the burials, viz. the bowl, the dish or saucer, the lid, the vase (*loṭā* and *chaṭṭi*), the ring-stand, the three- and four-legged vase, the large urn, etc. Occasionally the same mark may occur on a three-legged vase of polished red ware from one site, a bowl of Black-and-red Ware from another and a *loṭa* of all-black ware from still another. This occurrence irrespective of fabric and form further accentuates their significance.

The possibility of their being potters' marks or 'owners' marks'[1] is rendered rather remote by the occurrence of (a) similar marks on pots from sites widely separated from each other[2] and (b) different marks, sometimes as many as four on the same pot.[3] Instances of the same marks being repeated twice or thrice on a vessel are also present.[4] These marks are frequently drawn carelessly, occasionally with minor variations notably the cross and the arrow-head and may only approximate to their counterparts in each region. In case of some of the marks at Maski, the markings on the inside are slightly different from those on the outside (fig. 14, *B*(*i*)*3*). Furthermore, such markings, as a whole, whether on the inside or outside, are prominently displayed on the walls rather than being confined to the underside of the base or any other such unobtrusive spot, normally used for monograms.

If, on the other hand, these markings signify symbols, as Hunt seems to think, presumably related to the megalithic burials, they should admit of some classification, either regional or typological, following that of the tombs, or they should be broadly uniform in all the regions, notably peninsular India, where megalithic monuments are concentrated, since all the Indian megaliths belong essentially to one and the same culture. Besides, the markings in that case should occur only on the pots deposited in the

[1] R. Bruce Foote, *Catalogue of Prehistoric Antiquities* (Madras, 1901), p. xvii and pl. XXXV.

[2] E. H. Hunt, 'Hyderabad cairn burials and their significance', *Jour. Roy. Anthrop. Inst.*, LIV (1924), pp. 140-156; also *Ancient India*, no. 4, *op. cit.*, pp. 244-46 and fig. 31. For example, compare the multiple arrow-head from Savandurga (B. R. Branfil, 'On the Savandurga rude stone cemetery, central Maisur', *Indian Antiquary*, X (1881), pp. 1-12), with roughly similar one from Bahal, East Khandesh District, Subbarao, *op. cit.* (1956), fig. 30, although Khandesh apparently falls outside the megalithic zone as far as present knowledge goes.

[3] Numa Laffitte, 'A note on certain signs inscribed on pottery found in ancient funeral urns in South India', *Indian Antiquary*, LX, pp. 137-38; also E. H. Hunt, *Jour. Hyd. Arch. Soc.*, (1916), pp. 180-224.

[4] J. M. et G. Casal, *Site Urbain et Sites Funéraires des environs de Pondichérry Virampatnam, Mouttrapaleon, Souttoukény*, Publications de la commission de fouilles archéologiques fouilles de l'inde (Paris, 1956), p. 70, fig. 24, *U XXII* etc.

burial-graves and that too each grave should ordinarily contain some pots bearing graffiti attesting to the ritual. But this is only partially borne out by the existing evidence. Whereas graffiti are entirely absent on the megalithic pottery from the habitational deposits at Chandravalli[1] and Arikamedu,[2] they are present on the pottery from the corresponding strata at Maski (three examples, fig. 28, *13* and *14*), Brahmagiri (six examples)[3] and Sengamedu. At the latter site no megalithic monuments were located.[4] As regards the occurrence of some pots bearing graffiti in each grave, Maski provides a negative evidence (below, p. 88), and such a phenomenon was unfortunately not recorded at Brahmagiri. At Sanur and Kunnattur, however, each excavated grave contained some pots bearing these marks. Bahal is yet another site where graffiti are seen on some of the pots recovered from a pit-burial. Such pots include not only the black-and-red ware and the red ware but also the painted ware of Jorwe-Nasik fabric.[5] Such an assemblage is not without significance. A few sherds of black-and-red ware showing graffiti were also found from the occupational strata of Bahal. A closer observation in future excavations is, therefore, needed to form a substantive hypothesis.

Yazdani surmised that the graffiti represent written characters like the Egyptian hieratic script used to express ideas. According to him, '75 per cent of them are identical with the alphabetical signs given by Evans in his comparative table showing the relation in Cretan and Aegean, Egypto-Libyan and Libyan writings'.[6]

From the foregoing it is evident that before any convincing inferences are drawn, a detailed classification of the graffiti occurring on the megalithic pottery bearing on the type and region of the monument is called for. The only classification so far available is that by Yazdani, who listed as many as one hundred and thirtyone marks from various sites in the Deccan and south India.[7] This classification, besides being outdated (being three decades old), is also outmoded since it lacks references to the type of the monuments. The importance of typological classification need hardly be stressed if we recall that at Brahmagiri, save for a single overlap, the markings on the pots from the cists were not repeated on those from the pit-circles.[8] Similarly, at Sanur, where two major types of megalithic burials were opened,[9] some of the markings are peculiar to the pit-burials.

Nineteen different marks, occurring either alone or in groups of two, were recorded at Maski. Three of these marks (fig. 29, *13-14*) occurred on the pottery from the habitational deposits, while the remaining sixteen were distributed as follows: five from the burials of class B(i) (fig. 29, *1-4* and *11*); one each from the burials of class B(ii) and B(iii) (fig. 29, *5* and *6* respectively); five from the burial of class B(iv) (fig. 29, *7-10*) and four from partially excavated burials (fig. 29, *12* and *15*). No graffito was found on the pots from burial-class B(v). All the varieties are illustrated below.

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[1] *Ancient India*, no. 4, *op. cit.*, p. 274.

[2] J. M. Casal, *op. cit.* (1949).

[3] *Ancient India*, no. 4, *op. cit.*, p. 244.

[4] Information from Shri N. R. Banerjee. Also cf. 'The Excavations at Sengamedu', *The March of India*, June 1956, pp. 43-46.

[5] *Indian Archaeology 1956-57—A Review*, pp. 17-19.

[6] G. Yazdani, *An. Rep. Arch. Dept. H.E.H. the Nizam's Dominions for the year 1915-16, and 1916-17* (Calcutta, 1917 and 1918 respectively), pp. 9-10 and 5-8 respectively; also 'Megalithic remains of the Deccan—new feature of them', *Jour. Hyd. Arch. Soc.*, 1917, pp. 56-79.

[7] Yazdani, *op. cit.* (1917), pp. 64-69.

[8] *Ancient India*, no. 4, *op. cit.*, p. 245.

[9] Banerjee, *op. cit.* (1956), pp. 28-31.

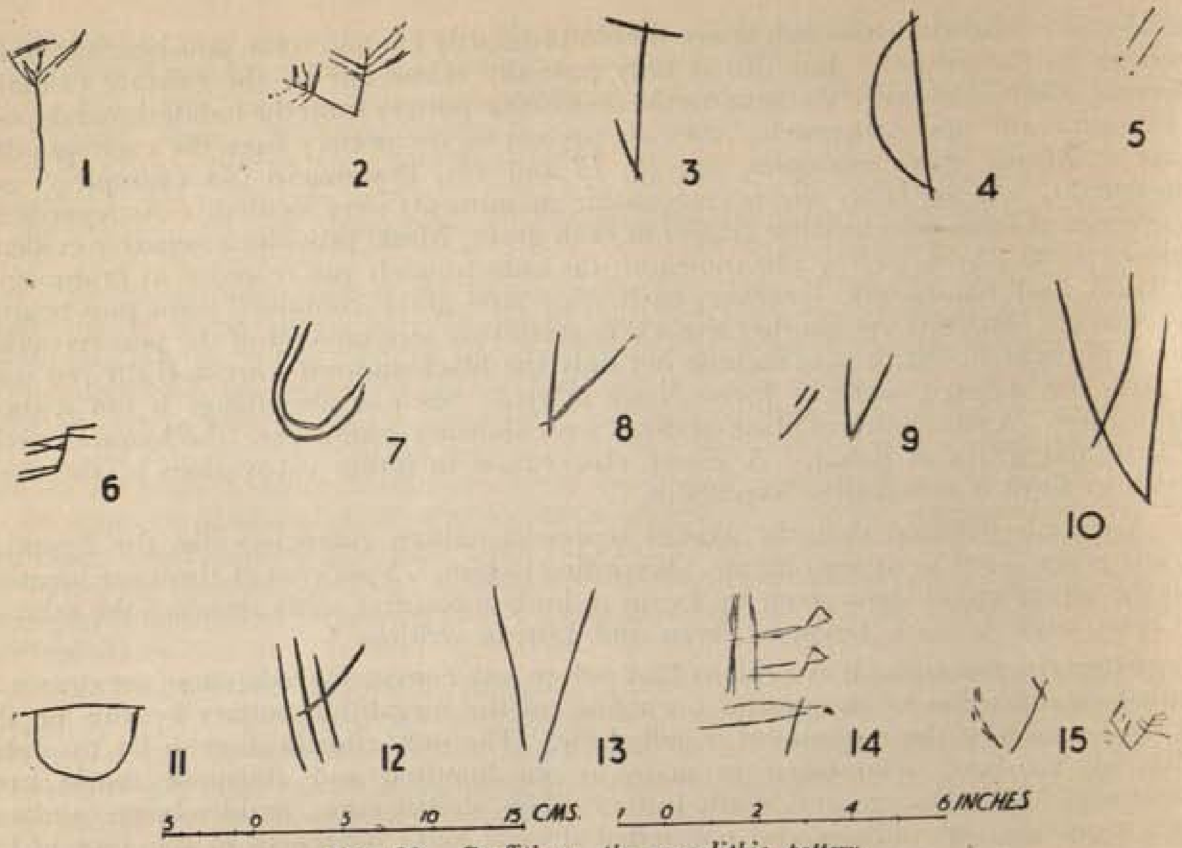


FIG. 29. *Graffiti on the megalithic pottery*

Fig. 29

1. Trident-like mark, variation of Yazdani no. 11. On the pot of type B(i)1c.
2. Tree-like mark, variation of Yazdani no. 41. On a pot of type B(i)3a.
3. Scratching on a pot of type B(i)8.
4. Bow-like mark, variation of Yazdani no. 129. On a pot of type B(i)8a.
5. Parallel lines resembling Yazdani no 91. On a pot of type B(ii)11.
6. Banner-like mark. On the urn of type B(iii)11.
7. Double-loop, resembling Yazdani nos. 95 and 96.[1] On a pot of type B(ii)1.
8. Carelessly-incised cross, a variation of Yazdani no. 57. On a pot of type B(iv)2.[2]
9. Group of two marks, parallel line and a V-like incision, resembling Yazdani no. 2. On a pot of type B(iv)3.
10. Variation of an arrow-head roughly similar to Yazdani no. 114. On a pot of type B(iv)4.
11. Variation of no. 4 above. On a pot (unillustrated) from burial-class B(i).
12. Group of two marks, a cross and parallel lines. On a pot (unillustrated) from a partially-exposed megalithic burial.
13. Two oblique lines. On a pot from the habitational deposits, a mid-level of Period II.
14. Group of two marks. On a pot from the habitational deposits, a late level of Period II.
15. Group of two marks, tree-like mark, similar to no. 2 above, and a composite mark of a cross and a V. On a pot (unillustrated) from a partially-exposed burial.

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[1] Also cf. J. M. et G. Casal, *op. cit.* (1956), p. 70, fig. 24, *U Va* and fig. 19, 117*e*.

[2] Also cf. *Ancient India*, no. 4, *op. cit.*, p. 246, fig. 31, *8*.

9. OTHER FINDS

A. Microliths[1]

The present excavation yielded seven hundred and six microliths besides twentyfive cores and twelve flakes with crested ridge showing alternate flaking. The quantity obviously indicates that the implements must have been manufactured either on the occupation-sites themselves or in their very close vicinity, since the material used was quite ready to hand in the inter-trappean beds[2] and limestones of the Bhima series,[3] some of the localities being only forty to fifty miles due north and north-west of Maski. While chert was the more normal medium, other silicon minerals like agate, carnelian and opal were also employed.[4] These forms of silica are very hard and fine-grained, yet they can be chipped or flaked quite easily with perfect conchoidal fracture giving a razor-like sharp edge to the flakes.

The classification of stone implements, notably microliths, is largely an arbitrary one and lacks standardization. The existing taxonomy is based on the apparent technique of manufacture and in part on the widely-accepted standard forms. Thus, each group becomes a purely artificial category from the point of view of function, since type was admittedly not the aim of the implement-maker. Unfortunately, however, no organic material has been found showing how the objects were hafted, with the result that exact methods of their employment are not known. As a result of recent work on the Australian stone tools, three main categories of implements have been recognized.[5] (a) implements that function by being drawn or pushed lengthwise in the line of the cut through the surface of the object; (b) implements that function by being pushed or drawn back transversely at right angles to the direction of the cutting edge to rasp only the flat or rounded surface of the object; and (c) implements that function by cutting or penetrating from the distal end. To these may be added another category comprising (d) implements that function by engraving or notching on a soft medium like wood, bone or antler or on rock-surface from the prepared end.

The microliths from Maski are classified into the following types on the basis of methods of employment outlined above, with form as a secondary consideration. Functionally, types I-III[6] belong to category (a), type IV to category (b), types V-VI

[1] The term 'microlith' is used here for the sake of convenience to include not only those narrow flakes from which the bulb of percussion has been removed and which show the typical steep secondary retouch or 'blunting' on one or both edges in the sense it is implied in prehistoric parlance (cf. J. G. D. Clark, *The Mesolithic Age in Britain* (Cambridge, 1932), p. xx) but, also in its widest application, those flakes, both fortuitous and parallel-sided, which, though devoid of any secondary work on either edge, show distinct signs of use. Also cf. D. H. Gordon ,'The industries of the Holocene in India and Pakistan', *Ancient India*, no. 6 (1950), pp. 69 and 78.

[2] Syed Kazim, 'The inter-trappean chert beds and their fossils near Gurmatkal, Gulbarga District', *Jour. Hyd. Geol. Surv.*, IV, pt. 2, (Hyderabad, 1945), pp. 1-5.

[3] C. Mahadevan, 'Geology of the south and south-western parts of Surapur Taluq of Gulbarga District', *ibid.*, pt. 1, (Hyderybad, 1941), pp. 134 and 156.

[4] Selected specimens were kindly examined by Dr. C. Mahadevan, Head of the Department of Geology, Andhra University.

[5] S. R. Mitchell, *Stone-Age Craftsman* (Melbourne, 1949), p. 27.

[6] Although both lunates and trapezes have been included by Mitchell in the category of scraping implements, I am inclined to class them as cutting tools as far as specimens from Maski are concerned. The retouch on all the specimens is very steep, almost vertical and from the dorsal surface, the tool thus being useless for scraping purposes. Furthermore, the sharp edge in many cases shows serrations similar to those on the blades indicative of use in cutting. No concaves are met with in these form.

to category (c) and type VII to category (d). It is, however, manifestly difficult to maintain these functional divisions rigidly, since some of the border-line forms could have been used for more than one general purpose, as for example types IID and IIE grade imperceptibly into types VIA and IIIA respectively.

Type I (one hundred and twentyseven examples): asymmetrical flakes. Very often fortuitous flakes which do not show any retouch are considered as rejects. This is a rather unfortunate concept and may be true only to some extent, since many of these unworked flakes show signs of use on the keen edge obtained from normal primary flaking. It should be noted that most of the ordinary needs of the ancient man could be fulfilled by a sharp cutting edge which is the only determining factor in classifying these flakes as implements. From the nature of things these flakes have accidental shapes, generally broad in proportion to their length and do not lend themselves easily to classification.

Type II (five hundred and thirtysix examples): blades—relatively well-struck narrow flakes carefully prepared on the core prior to detachment. Type IIA (four hundred and fiftysix examples) is parallel-sided with both edges retaining the primary flake-cut without any retouch. Implements are long and often thin and flat exhibiting either a triangular or trapezoidal section. The bulbs of percussion, wherever existing, are diffused and soft, indicative of the employment of controlled flaking apparently with punch-technique, as the point of impact must be small. The edges of some of the specimens are seen curled over at the distal end characteristic of hinge-fracture. The cutting edges in quite a number of cases are chipped or battered as a result of use. On an average, they range from 1½ to 2½ in. in length, but longer specimens, varying from 4 to 5 in., sometimes labelled as ribbon-flakes, are also met with. The size is largely dependent upon the nature of the stone used, viz. chert. Similar, though chronologically disparate, long blades (ribbon-flakes) of chert are plentiful on some of the sites in Sind.[1] Type IIB (three examples) has one of the parallel sides trimmed to produce a serrated or saw-like edge. In two cases the non-serrated edge is backed by steep blunting. It is, however, quite difficult sometimes to differentiate between deliberate trimming and edge-chipping that has resulted from use. Type IIC (fiftyfour examples) is also parallel-sided with one edge straight and razor-like and the other backed by steep blunting invariably from the dorsal surface. Type IID (eighteen examples) has the blunted back pointed at the distal end in distinction to the squared tip of type IIC. In shape it resembles more appropriately a pen-knife. Type IIE (five examples), is a narrow crescentic-backed blade of which the arc edge is blunted and which shows a flat trapezoidal section. The tools of types IIB to IIE can be either left- or right-handed.

Type III (sixteen examples): geometrics—implements that are made with geometric precision. Type IIIA (thirteen examples) is the lunate with secondary working on the margin opposite the sharp edge which invariably is the chord-part. The secondary working consists of steep, often vertical, blunting and does not show any flat-edge trimming. Normally the section is wedge-shaped which apparently facilitated the hafting in a wooden handle. Type IIIB (three examples) is the trapeze with two parallel sharp-edged lateral margins and transverse sides blunted by secondary retouch.

Type IV (two examples): scrapers. Type IVA (one example) is the flat thumb-nail scraper discoid in outline and having trimmings all round the periphery. The trimmings on the inner surface are very much battered and worn out due to extensive use. It is

[1] D. H. Gordon, 'The microlithic industries of India', *Man*, XXXVIII, no. 19 (Feb. 1938), pp. 21-23.

contemplated that such scrapers may have been much larger originally and were constantly reflaked as they became blunted through use until the edge was worn back to a mere stub and was no longer serviceable. Type IVB (one example) is an inverse scraper having retouchings on both margins of the flake, from the inner face on one margin and from the upper face on the opposite margin. It has a distinct median ridge, a triangular section and a prominent bulb of percussion at the butt end. The flake was evidently struck from the core with a hammer-stone with percussion free-flaking technique. The implement could as well have served as a reaming tool.

TYPE V (eleven examples): chip points. These were made from flakes that taper in width from butt to the point or by snapping fragments obliquely from both edges of a thin flake. Some of them were also occasionally worked. The butt end in one case seems to have been nicked or superficially tanged for hafting.

TYPE VI (twelve examples): worked points. Type VIA (three examples) is the narrow flake blunted by oblique retouching to a point, the blunting being confined only to the truncated part of the margin. Alternatively, it may be labelled as the asymmetrical point. Type VIB (nine examples) is bimarginally worked and is superficially shouldered in a few cases. Some of the specimens show inverse working suggestive of their use as borers or reaming tools.

TYPE VII (two examples): burins. Both specimens are plain bladish flakes showing an oblique single-blow graver facet. One of these seems to be a fortuitous one or a *burin-de fortune*. Thus, the available evidence is not sufficiently definitive for the presence of tools of this type at the site.

TYPE VIII (twleve examples): flakes with crested ridge showing alternate flaking. Essentially these are not artefacts but represent a stage in the technique of producing flakes from the core. On the core, after removing the cortex, a ridge is prepared by alternate flaking. The function of this ridge was to guide or control the run of the flakes to be detached. The technique was employed with advantage for the production of long flakes. The first flake to be detached from the core, therefore, will have the usual plain inner surface, while the upper surface will be marked by a crested ridge showing alternate flakings. This technique of flaking implements was widely followed in western Asia and the Aegean region.[1] The illustrated specimen (fig. 32, *40*) also shows signs of working on one edge.

In addition to the above types, there are twentyfive examples of cores or nuclei. They are of nodules of chert, agate or chalcedony and often display parallel (fluted) flake-scars and in some cases striking platforms that seem to have been carefully prepared prior to the removal of flakes. Throughout, plain striking platforms and free flaking, combined at times with 'controlled' technique, are typical of the industry.

The appended chart (pp. 92-93) shows the frequency distribution of the above categories of implements in the various periods at Maski. In the main, the chart calls for no special comment. The whole evidence demonstrates a flake complex dominated by a blade industry. As the illustrated specimens reveal, there is a marked emphasis on the production of narrow forms. Significant, however, is the overwhelming majority of flakes and blades[2] (parallel-sided ribbon flakes of type IIA) representing 78·5 per cent of the total in relation to other forms showing secondary work. As a rule there is very little secondary

[1] B. Subbarao, 'Chalcolithic blade industry of Maheswar (central India) and a note on the history of the technique', *Bull. Deccan College. Res. Inst.*, XVII (1955-56), pp. 126 ff.

[2] For definition see M. C. Burkitt, *The Old Stone Age* (London, 1955), p. 48, and Hallam L. Movius, Jr., 'Curran Point, Larne, County Antrim: The Type Site of the Irish Mesolithic,' *Proceedings of the Royal Irish Academy*, 56, Section C1 (Dublin, Sept. 1953), p. 48.

CHART SHOWING THE FREQUENCY DISTRIBUTION

		I	II Blades					III Geometrics	
		Asymmetrical flakes	A *parallel-sided*	B *serrated*	C *straight backed*	D *pointed backed*	E *crescentic backed*	A *lunates*	B *trapezes*
Cutting MSK-10	12	52	98	1	9	7	2	2	
Period I	11	20	70	2	5	1		2	1
	10	26	147		20	3	1	1	2
	Pits cut into layers 10-12	4	19		2			1	
Period II	9	2	33		8			1	
	8	3	11		2	1			
	7	4	6					1	
	6	2	3		1			1	
	5	2	3						
Period III	4	1	4		1				
	3		5						
	2		1						
	1	4	7		2				
Cutting MSK-9 *Period I*		7	35		3	5	2	2	
Cutting MSK-12 *Medieval Period*			2						
Unstratified deposit in a rock-shelter MSK CV-1			12		1	1		2	
Total		127	456	3	54	18	5	13	3
Percentage		17·1	61·4	0·4	7·3	2·4	0·7	1·7	0·4

OF MICROLITHS AND CORES FROM MASKI 1954

IV Scrapers		V	VI Worked points		VII	VIII			
A *discoid*	B *inverse*	Chip points	A *obliquely retouched*	B *bimarginally retouched*	Burins	Crested ridged flakes	Cores	Total	Percentage
	1	3	1		1	2	3	182	24·5
1		2		5		3	4	116	15·6
		1		2		2	5	210	28·3
		1		1		1	1	29	3·9
							4	49	6·6
						1	1	19	2·5
								11	1·5
						1	2	10	1·3
							1	6	0·8
								6	0·8
								5	0·7
							1	2	0·3
							2	15	2·0
		3			1	1	1	60	8·1
								2	0·3
		1	2	1		1		21	2·8
1	1	11	3	9	2	12	25	743	
0·15	0·15	1·5	0·4	1·2	0·3	1·6	3·4		

work seen on the tools and wherever present it is always of a steep blunting nature achieved apparently by pressure flaking, the fine or flat-edge trimming being almost absent excepting perhaps in the case of the discoid scraper and some of the bimarginally retouched points. The primary knapping reveals the employment of free hammer, often combined with controlled, flaking.

The significant occurrence of trapezes and burins at Maski has been noted for the first time, since they are absent from the Bruce Foote Collection (Madras Museum) from the same region, which otherwise contains all the classified types including flakes, serrated blades, retouched crescents and crescentic blades, pointed blades and disc- and end-scrapers.[1]

Regarding distribution it may be stated that the larger percentage is concentrated in the strata of Period I in Cuttings MSK-10 and 9. The few pieces occurring in the strata of Periods II and III and in Cutting MSK-12 are illustrative more of the stray survival of the objects than of waning industry, as they form only a negligible percentage of 14·5 per cent (after discounting layer 1). These specimens are also mostly fragmentary and do not include the specialized forms, viz. types IIIB to VII. Worked tools in these Periods comprise fourteen straight-backed blades, one pointed-backed blade and three lunates being only 2·4 per cent of the total.

The illustrated specimens are listed below.[2]

Figs. 30-32; pls. XXIII-XXV A

1. Chert, variegated, tan brown with a layer of limestone. Working edge showing chippings due to use. Bladish flake, wedge-shaped in transverse section, showing a thick double-edged lateral margin and a sharp working edge formed at the junction of the inner and outer plane cleavage surface, has a thick faceted butt end showing the bulb of percussion as also the bulbar scar, indicating thereby that the flake was struck by a sharp blow; the prepared striking platform is inclined roughly at right angle to the main flake-surface. Left-handed tool. Type I: asymmetrical flake. From a pit ascribable to the earliest level of Period I. (MSK-10, 1100.)

2. Chert, chocolate, coloured. Irregular broken cutting edge. Bladish flake of flattish transverse section with a low median ridge and a diffused bulb of percussion at the butt end. One of the lateral margins shows a double edge indicating a narrow flake-scar. Type I: asymmetrical flake. From the earliest level of Period I. (MSK-10, 353.)

3. Chert, tan brown. Working edges are irregular and show chippings due to use. Flake of triangular transverse section prominently showing the bulb of percussion, the bulbar scar and the ripples on the inner surface. Some light trimmings are also perceivable. Type I: asymmetrical flake. From a late level of Period I. (MSK-10, 509.)

4. Chert, opaline, white. Working edge almost intact. Flake of wedge-shaped transverse section showing two plane surfaces on the upper side. The bulbar end has apparently been removed. The implement could have been also used for scraping purposes. Type I: asymmetrical flake. From the earliest level of Period I. (MSK-10, 559.)

5. Chert, opaline, white. Working edge shows slight chippings due to use. Flake with a slightly concave working edge and a scalene triangular transverse section. One of the upper plane

[1] D. H. Gordon, *op. cit.* (1938), p. 23: also Foote, *op. cit.* (1916), pp. 122-29 and *op. cit.* (1914), pp. 179-81.

[2] The descriptive scheme adopted here is that of Burkitt, *op. cit.*, pp. 56-58, and follows the order: material; state of preservation; primary flakings; secondary working; special features; name and age (including provenance) of the tool.

surfaces still retains the pebble cortex. Left-handed tool. Type I: asymmetrical flake. From the earliest level of Period I. (MSK-10, 590.)

6. Chert with a patch of limestone, variegated light stone-colour. The marginal working edges as also the distal end show chipings due to use. Long flake of trapezoidal transverse section with both edges retaining the primary flake-cut. The distal end is found to curl over, indicative of hinge-fracture. The butt end shows a diffused bulb of percussion and a bulbar scar, the prepared striking platform being at right angles to the main flake-surface. It is the longest flake from the locality and measures $5\frac{1}{4}$ in.[1] Type IIA; parallel-sided blade. From a late level of Period I. (MSK-10, 938.)

7. Chert, chocolate. One of the working edges shows chippings due to use. Long flake of trapezoidal transverse section, triangular towards the upper end with both edges retaining the primary flake-cut. The butt end shows a diffused bulb of percussion. Striking platform is not present. Type IIA: parallel-sided blade. From a late level of Period I. (MSK-10, 674.)

8. Chert, variegated chocolate. Both the working edges show chippings due to use. Long flake of triangular transverse section with both edges retaining the primary flake-cut. The bulbar end shows ripples with a slight swelling. The bulb of percussion seems to have been removed. Type IIA: parallel-sided blade. From a late level of the Medieval Period; essentially it may be regarded as a surface-find. (MSK-12, 43.)

9. Chert, variegated light chocolate. Both the edges show chippings due to use. Long flake of triangular transverse section having a low median ridge with both edges retaining the primary flake-cut. The butt end prominently shows the bulb of percussion and the striking platform which is inclined at a little more than right angle to the main flake-surface. Type IIA: parallel-sided blade. From a mid-level of Period I. (MSK-10, 939.)

10. Chert, light chocolate. One of the edges shows chippings due to use. Medium-sized thin flake of trapezoidal transverse section with both edges retaining the primary flake-cut. The bulbar end shows ripples or rings but no bulb of percussion or striking platform. Type IIA: parallel-sided blade. From an unstratified deposit in a rock-shelter. (MSK CV-1, 15.)

11. Chert, light chocolate. One of the edges shows chippings due to use. Long flake of trapezoidal transverse section. A thin flake seems to have been snapped off from one of the marginal ends showing a double edge. The butt end shows a diffused bulb of percussion, ripples, bulbar scar and a part of the striking platform, which is at right angles to the main flake-surface. The distal end, which is broken seems to curl over in the fashion of no. 6, indicative of hinge-fracture. Type IIA: parallel-sided blade. From a late level of Period I. (MSK-10, 675.)

12. Chert, light brown. Partly broken. Flake of wedge-shaped transverse section. No bulb or striking platform or rings are present. While one of the edges is serrated by fine chipping from the inner surface, the other is blunted by steep retouching from the upper surface. Left-handed tool. Type IIB: parallel-sided serrated blade. From a mid-level of Period I. (MSK-10, 244A.)

13. Chert, light brown. The serrated edge does not show any battering. Narrow flake of triangular transverse section. The bulbar end is not present. One of the edges is serrated by fine chipping from the inner surface, and the other is blunted in the same fashion as no. 12 above. Left-handed tool. Type IIB: parallel-sided serrated blade. From a mid-level of Period I. (MSK-10, 1035.)

14. Chert, buff. Sharp, with an almost fresh working edge. Long flake with low trapezoidal transverse section narrowing towards the distal end. One of the edges retains the primary flake-cut. No bulb or striking platform is present. The lateral margin is blunted by steep secondary retouchings directed from the upper surface. Blunting is also noticeable on part of the other edge especially where the flake is narrowing. Type IIC: parallel-sided straight-backed blade. From a late level of Period I. (MSK-10, 901A.)

[1] The longest flake recorded so far from the region is from Wuttugallu and measures $3\frac{3}{16}$ in. in length. Cf. Foote, *op. cit.*, p. 124.

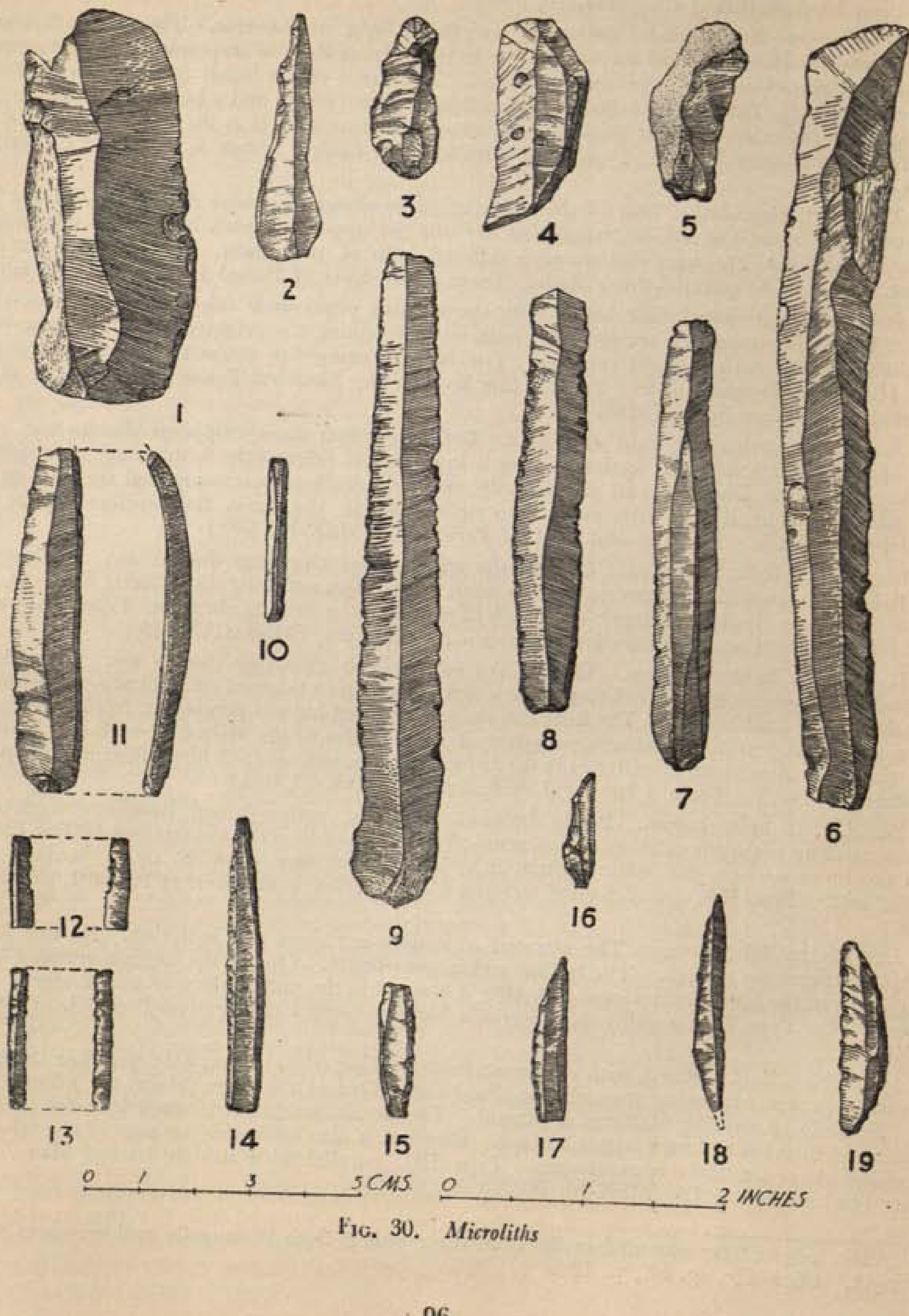


FIG. 30. *Microliths*

15. Quartz, transparent. Almost fresh working edge. Flake of trapezoidal transverse section with one edge retaining the primary flake-cut. The butt end shows a part of the bulb of percussion and a few ripples. No striking platform is present. The lateral margin is blunted in the same fashion as no. 14 above. Type IIC: parallel-sided straight-backed blade. From an early level of Period I. (MSK-11, 10.)

16. Quartz, translucent. Almost fresh working edge. Flake of wedge-shaped section with one edge retaining the primary flake-cut. No bulb of percussion, striking platform or rings are present. The lateral margin, being pointed, is blunted by steep secondary retouching directed from the upper surface. Left-handed tool. Type IID: pointed-backed blade. From the earliest level of Period I. (MSK-10, 814.)

17. Chert, light chocolate. Almost fresh working edge. Flake of trapezoidal transverse section with one edge retaining the primary flake-cut. No bulb of percussion, striking platform or rings are available. The lateral margin is blunted in the same fashion as above. Left-handed tool. Type IID: pointed-backed blade. From the earliest level of Period I. (MSK-10, 1097.)

18. Chert, light tan. Almost fresh working edge. Flake of triangular transverse section with one edge retaining the primary flake-cut. No bulb, striking platform or rings are present. The lateral margin has been blunted by steep secondary retouchings in a crescentic shape. Left-handed tool. Type IIE: crescentic-backed blade. From a late level of Period I. (MSK-10, 1085.)

19. Chert, tan brown. Working edge shows chippings due to use. Flake of triangular transverse section with one edge retaining the primary flake-cut. No bulb, striking platform or rings are present. The lateral margin is blunted in the same fashion as no. 18 above. Right-handed tool. Type IIE: crescentic-backed blade. From a pit ascribable to the earliest level of Period I. (MSK-10, 1073.)

20. Opal, white. The working edge is almost fresh. Flake of wedge-shaped transverse section with one edge retaining the primary flake-cut. Both the butt and the distal ends seem to have been removed. The lateral margin (arc-side) is blunted by secondary retouchings. Type IIIA: lunate. From a pit ascribable to the earliest level of Period I. (MSK-10, 1107A.)

21. Chert, light chocolate. Working edge is almost fresh. Flake of wedge-shaped transverse section with one edge retaining the primary flake-cut. Both the butt and the distal ends seem to have been removed. The lateral margin (arc-side) is blunted by steep secondary retouchings. Type IIIA: lunate. From a pit ascribable to a late level of Period I. (MSK-10, 1049.)

22. Chert, light chocolate. The working edge shows chippings due to use. Flake of triangular transverse section with both parallel margins retaining the primary flake-cut. Both the butt and the distal ends seem to have been removed. The transverse sides are blunted by steep secondary retouchings. Type IIIB: trapeze. From a late level of Period I. (MSK-10, 949C.)

23. Chert, opaline, white. Working edge shows batterings and chippings due to extensive use. Part of a broad flake from which the bulbar and distal ends have been removed. The working edge extends around the whole of the periphery and has been trimmed both from the outside as well as the inside. Type IVA: discoid (thumb-nail) scraper. From the earliest level of Period I. (MSK-10, 1080.) It is difficult to understand how these small-sized tools were used. They could have been effective only for very fine work, viz. preparing skins of small animals, etc.[1]

24. Cherty agate, variegated. Working edge seems to have been used and is not very sharp. Long flake of triangular transverse section showing a prominent bulb of percussion, a bulbar scar and a faceted striking platform at the butt end which is quite thick. The striking platform is almost at right angles to the main flake-surface. Shows inverse working, from the inner face on one margin and from the upper face on the opposite margin. The retouching on the inner face is less steep than on the upper. Type IVB: inverse scraper; could have been used as a reaming tool also. From a mid-level of Period I. (MSK-10, 558.)

25. Chert, buff. Broken at the lower end. Working edge shows chippings due to use. Flake of triangular transverse section with both edges retaining the primary flake-cut and tapering to a

[1] Sonia Cole, *The Prehistory of East Africa* (Penguin Books, London, 1954), p. 223.

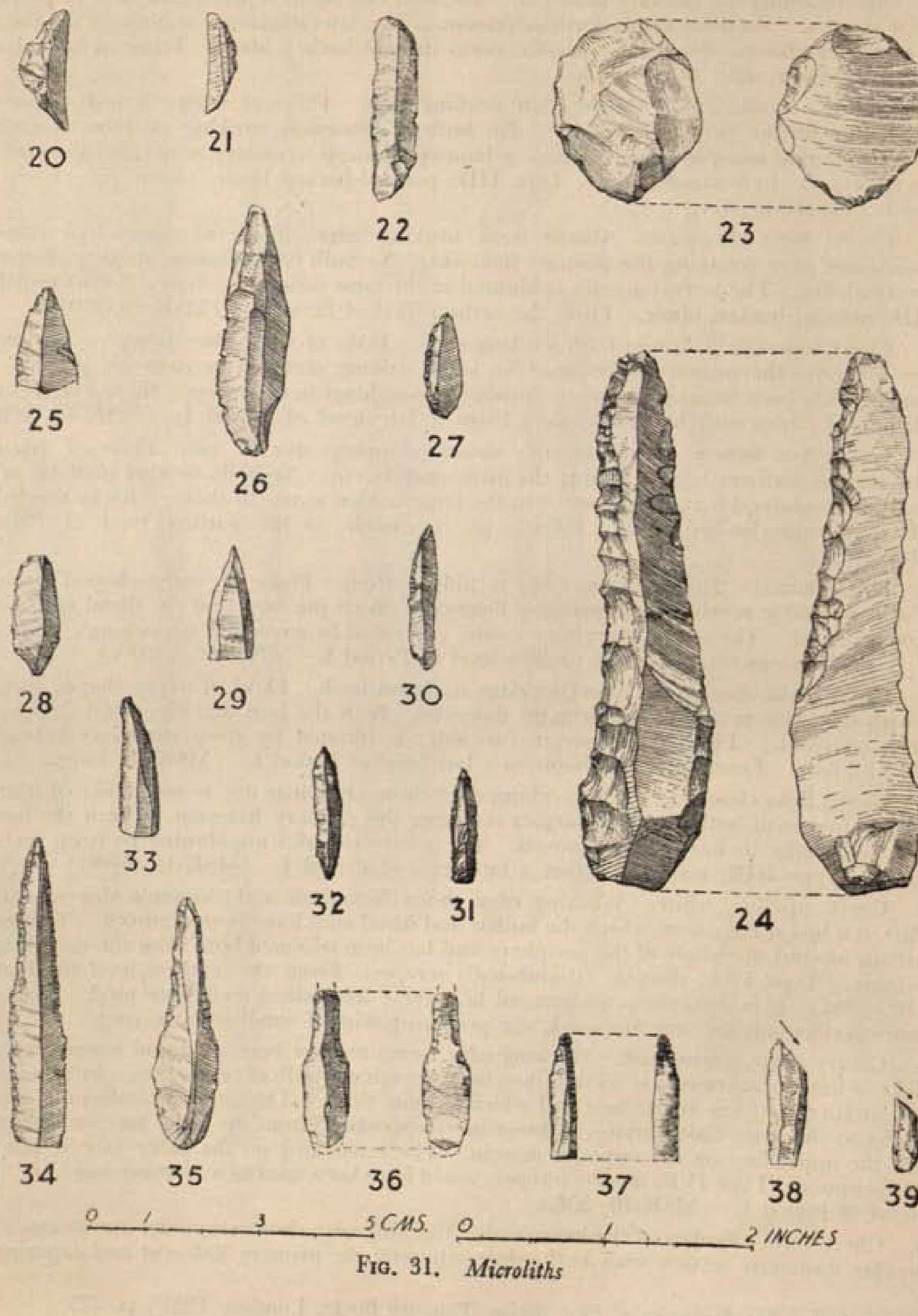


FIG. 31. *Microliths*

point. The bulbar end is not present. Type V: chip point. From an early level of Period I. (MSK-9, 40.)

26. Chert, tan brown. One of the working edges shows chippings due to use. Flake of almost traingular transverse section with both edges tapering to a point. The butt end shows a diffused bulb of percussion and a striking platform, which is at a little less than right angles to the main flake-surface. The bulbar end has been notched on the right apparently to facilitate hafting. Type V: chip point. From a mid-level of Period I. (MSK-10, 842.)

27. Chert, variegated brown. One of the working edges shows chippings due to use. Flake of triangular transverse section with one edge retaining the primary flake-cut. The bulbar end is not present. Opposite margin shows fine retouchings. Type V: chip point. From a mid-level of Period I. (MSK-10, 123A.)

28. Carnelian' translucent red. Working deges show chippings due to use. Flake of triangular tansverse section with both edges retaining the primary flake-cut. The inner flake-surface shows only the rings, the bulbs and the striking platform being absent. The bulbar end seems to have been nicked or superficially tanged for hafting. Type V: chip point. From a pit ascribable to the latest level of Period I. (MSK-10, 676.)

29. Chert, opaline, white. Broken at the lower end; working edges are sharp. Flake of trapezoidal transverse section. The bulbar end is not present. Two fragments from the lateral margin seem to have been snapped obliquely to make a sharp ridged point. Type V: chip point. From the earliest level of Period I. (MSK-10, 258A.)

30. Chert, brown. Working edge seems to have been used. Flake of triangular transverse section with one complete edge and part of the other retaining the primary flake-cut and the underside showing ripples. The worked margin is obliquely retouched to a point. The retouchings which are almost steep are also seen on part of the base. Type VIA: worked point, obliquely retouched. From a superficial deposit in a rock-shelter. (MSK GV-1, 20.)

31. Chert, chocolate. Broken at the lower end; working edge fairly fresh. Flake of triangular transverse section with one complete edge and part of the other retaining the primary flake-cut. The bulbar end is not present. The worked margin is obliquely retouched to a point, the retouchings which are almost steep being confined to the truncated part alone. Type VIA: worked point, obliquely retouched. From a late level of Period I. (MSK-10, 821.)

32. Chert, chocolate. Working edge almost fresh. Flake of triangular transverse section with complete one edge and part of the other retaining the primary flake-cut. The bulbar end is not present. worked margin is obliquely retouched to a point. The basal end on the left is nicked obviously for hafting. The retouchings are almost steep. Type VIA: worked point, obliquely, retouched. From the earliest level of Period I. (MSK-10, 379.)

33. Chert, light chocolate. Working edge fairly fresh. Flake of trapezoidal transverse section for the lower half and triangular for the upper with the lower part of one edge retaining the primary flake-cut. The bulbar end is not present. While one of the margins is completely retouched, the other is retouched on the truncated part alone to a point. The retouchings are comparatively flat and fine. Type VIB: worked point, bimarginally retouched. From a late level of Period I. (MSK-10, 1027B.)

34. Chert, tan brown. Working edges fairly fresh. Flake of triangular transverse section with only a part of one of the edges retaining the primary flake-cut. The bulbar end is not present. While one of the margins is completely retouched, the upper threefourths of the other are retouched to a point. The retouchings are almost steep. Type VIB: worked point, bimarginally retouched. From a late level of Period I. (MSK-10, 901B.)

35. Chert, deep tan. Working edges almost fresh. Flake of triangular transverse section with the lower half of the lateral margins retaining the primary flake-cut. The butt end shows a diffused bulb of percussion, bulbar scar and ripples. The striking platform which is only partially available is at a little more than right angles to the primary flake-surface. The upper half of both the margins are worked by steep retouchings, forming a superficial shoulder at mid-height.

Type VIB: worked point, bimarginally retouched. From a superficial deposit in a rock-shelter. (MSK CV-1, 22K.)

36. Chert, reddish. Broken at the upper end; working edge shows extensive use. Flake of triangular transverse section with the lower half of the lateral margins retaining the primary flake-cut. The bulbar end is broken. The upper half above the shoulder-point shows inverse retouchings, from the inner surface on one margin and from the outer surface on the opposite margin. The retouchings are comparatively flat and fine. Type VIB: bimarginally worked point, inverse retouched; could have been also used as a reaming tool. From a mid-level of Period I. (MSK-10, 533.)

37. Chert, chocolate. Working edge seems to have been extensively used. Flake of trapezoidal-*cum*-triangular transverse section with part of one edge retaining the primary flake-cut. The bulbar end is not present; shows inverse retouchings, from the inner surface on the truncated part and from the outer surface on the whole of the opposite margin. The retouchings are less steep on the inner surface than on the upper. Type VIB: bimarginally worked point, inverse retouched; could have been also used as a reaming tool. From a mid-level of Period I. (MSK-10, 536.)

38. Chert, opaline, white. Working edge almost fresh. Bladish flake of trapezoidal transverse section with both edges retaining the primary flake-cut. The bulbar end is not present. Shows a single-blow graver or burin facet; seems to be a fortuitious specimen. Type VII: burin. From the earliest level of Period I. (MSK-10, 551.)

39. Carnelian, reddish, translucent. Working edge almost fresh. Bladish flake of trapezoidal transverse section with both lateral margins retaining the primary flake-cut. The butt end shows

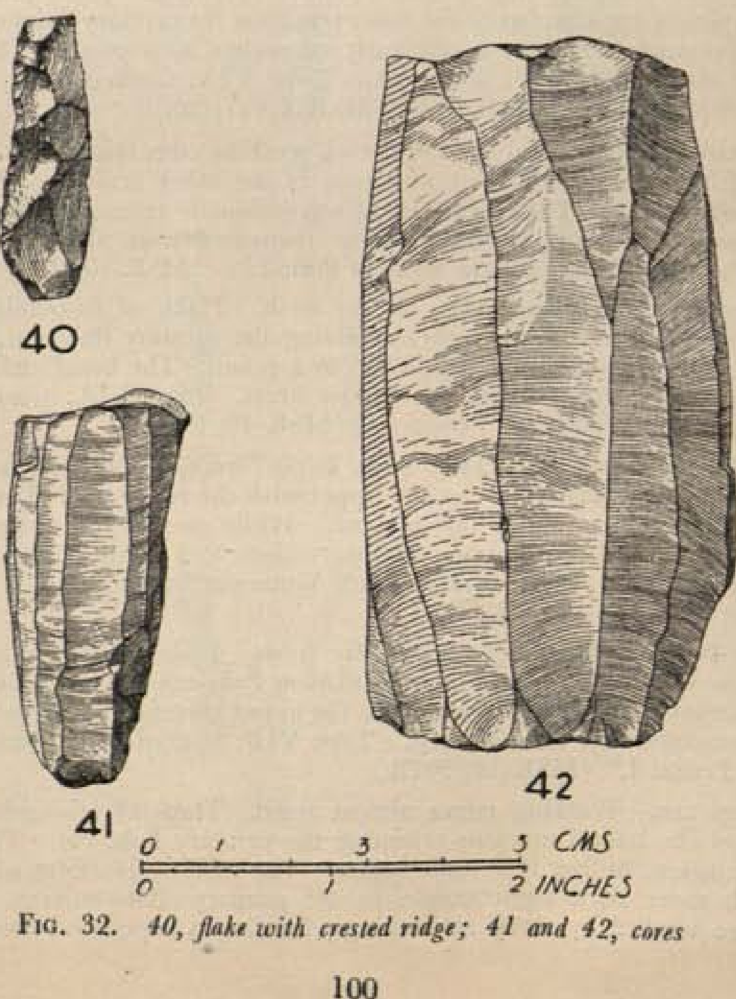
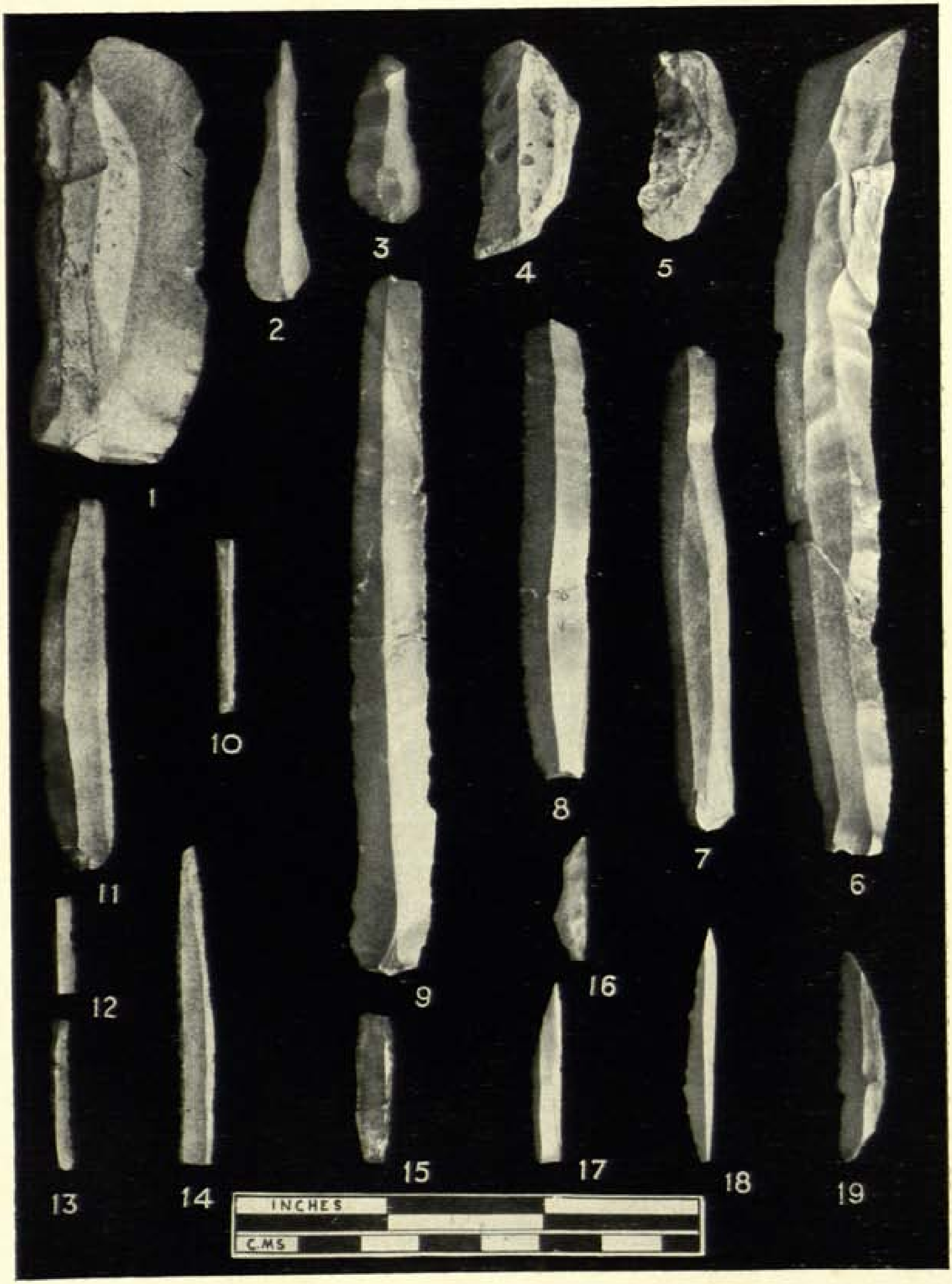
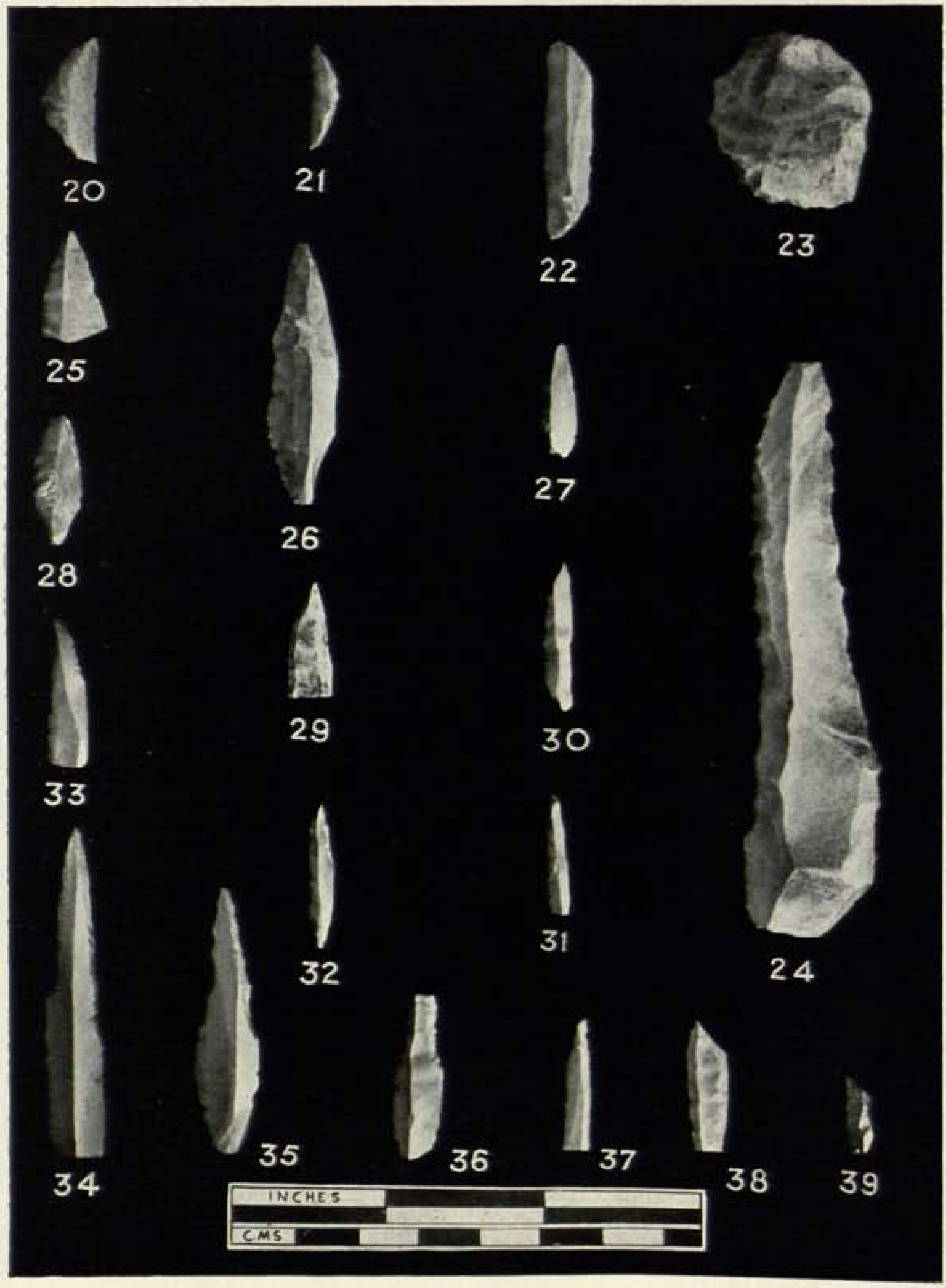


FIG. 32. *40, flake with crested ridge; 41 and 42, cores*

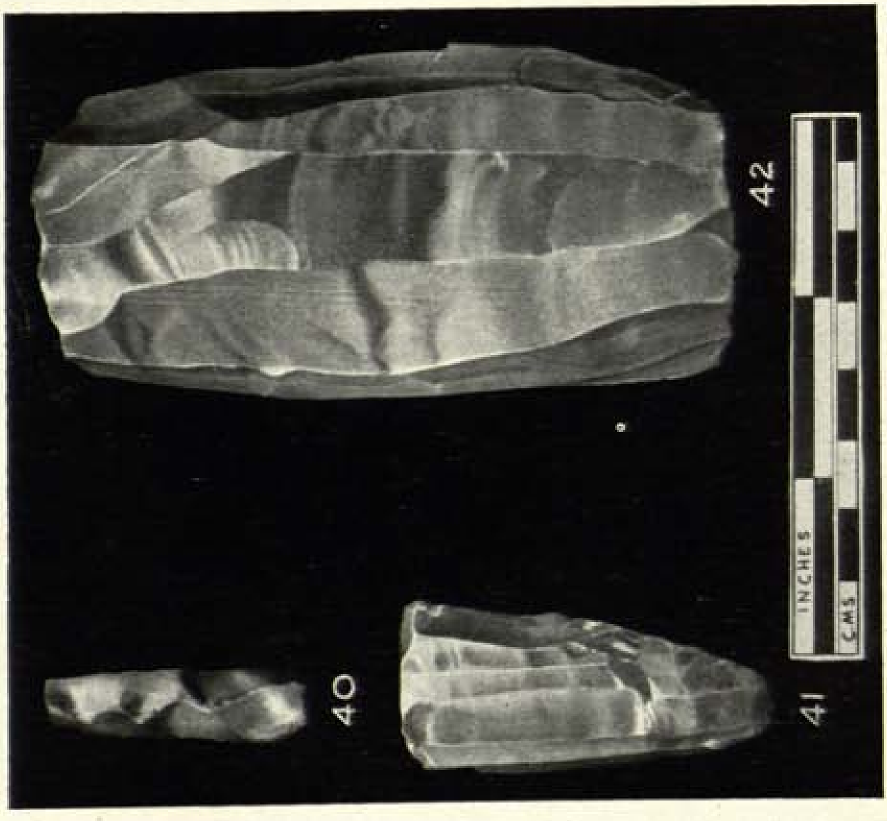


Microliths: 1-7, 9 and 11-19, Period I; 8 and 10, unstratified. See pages 94-97

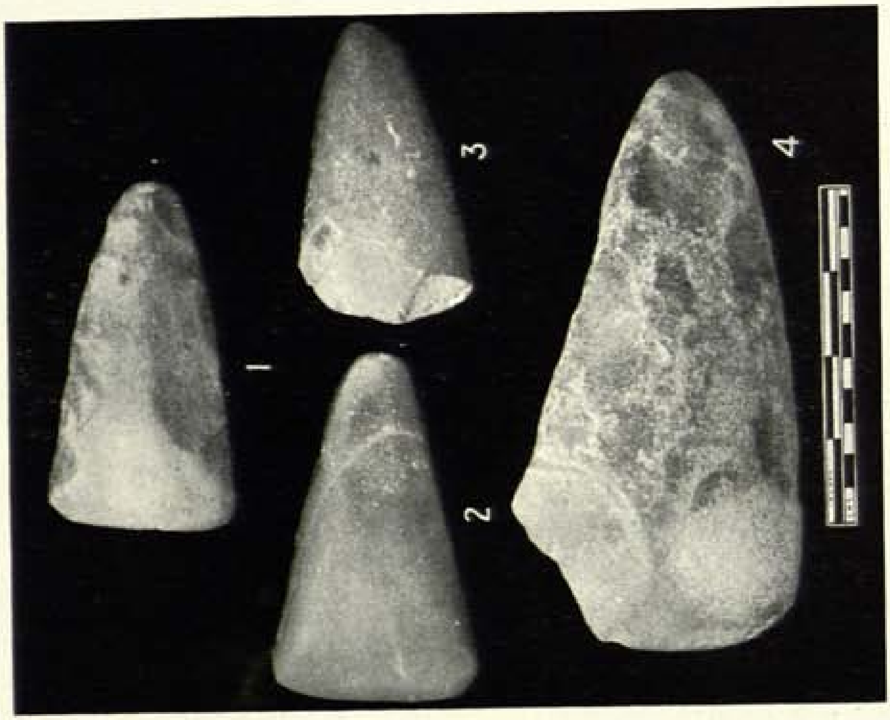


Microliths: 20-29, 31-34 and 36-39, Period I; 30 and 35, unstratified. *See pages 97-100*

PLATE XXV

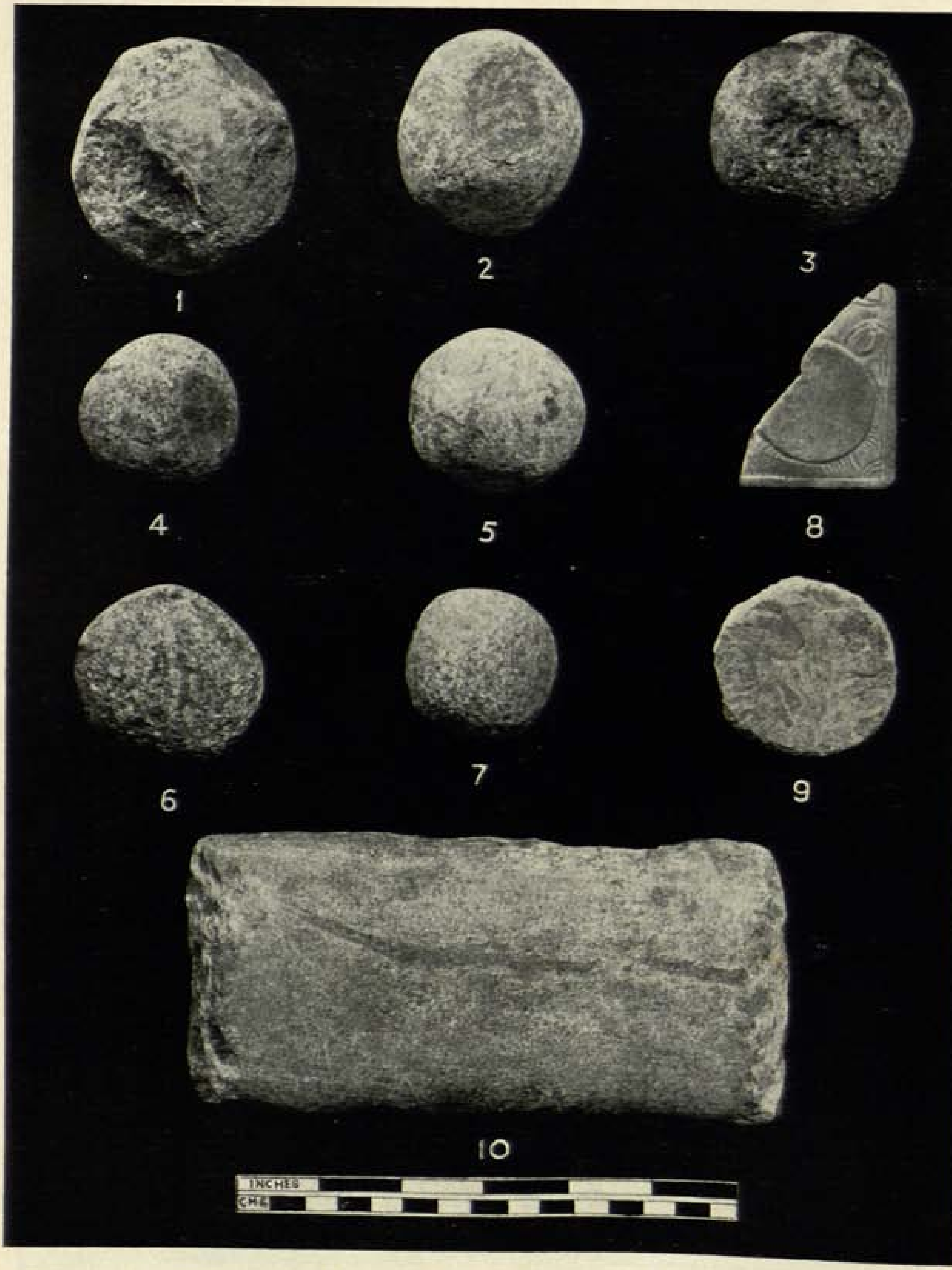


A. *Flake with crested ridge: 40, Period I; Cores: 41, Period II; 42, unstratified. See pages 100-01*



B. *Polished stone axes: 1-3, unstratified; 4, surface. See pages 101-03*

To face page 101



Stone objects: 1-3, 5 and 7, Period I; 6 and 10, Period II; 4, 8 and 9, Period III. *See pages 103-04*

diffused bulb of percussion but no scar or striking platform is present. Shows a single-blow burin facet. Type VII: burin. From the earliest level of Period I. (MSK-9, 76.)

40. Chert, jasperoid. Ridged flake of triangular section showing alternate flaking indicated by negative bulbs and rings. One edge retains the primary flake-cut, while the other has been retouched. Type VIII: flake with crested ridge. From a late level of Period I. (MSK-10, 821D.)

41. Chert, jasperoid. Core showing parallel flake-scars and a prepared striking platform, inclined roughly at right angles to the scar-surface. The diffused negative bulbs of percussion are indicative of the employment of controlled technique in flaking, wherein percussion is changed into pressure through the use of a punch. From a mid-level of Period II. (MSK-10, 867.)

42. Chert with streaks of limestone. Core showing parallel flake-scars and prepared striking platforms on either end as evidenced by the concavities of the rings and the negative bulbs present at both ends near the points of impact. The bulbs in this case are also less pronounced and soft as in the previous example indicating similar technique of flaking. From a superficial deposit associated with the menhirs; essentially a surface-collection, as the area is under cultivation. (MSK Meg-3, 8.)

B. Polished stone axes

It is curious that while polished stone axes had been reported from the previous excavations at the site[1] and can be picked up from the surface even now after a careful and patient search, not a single specimen was recovered from the excavated trenches in 1954.[2] This is all the more surprising in view of the fact that one of the trenches sunk in the same field where previous excavations were conducted measured as much as 105 ft. in length and 15 ft. in width, with the whole area carried down to the natural soil. There is reason to believe, therefore, that their occurrence must be extremely sporadic or confined to rock-shelters, most of which are very much disturbed either by selective collection or by ransacking.

The present collection comprises four specimens, one of which is a surface-find, while the remaining three belong to superficial deposits around the excavated menhirs and the pit-circle of burial-class B(v). For purposes of stratification these may be treated as surface finds since their being embedding a few inches below the present surface is due to ploughing only. All of these are of the characteristic pointed-butt type showing lenticular or ovoid section and are prepared out of dolerite, which is extensively available in the Raichur District.[3]

The illustrated specimens are described below.

Fig. 33; pl. XXV B

1. Dolerite, slate grey. Sharp cutting edge showing chippings at two places. Straight working edge with a pointed butt end and a truncated lenticular section. The implement is polished all over on both sides excepting the lateral margins including the butt end which shows flake-scars resulting from free flaking. Axe. From the rubble filling of the pit-circle. (MSK Meg-2, 2.)

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[1] *An. Rep. Arch. Dept. H.E.H. the Nizam's Dominions 1936-37*, pp. 14-16, pl. X.

[2] It may be mentioned incidentally that Foote also did not collect any polished stone are from this site during his survey in 1888. Cf. Foote, *op. cit.* (1914), pp. 179-81.

[3] Cf. 'Geology of the eastern portion of the Raichur Doab with special reference to the granodioritic phases of the Dharwar series of the rock', *Jour. Hyd. Geol. Surv.*, III, pt. 1 (Hyderabad, 1936), p. 25 and 'Geology of the western portion of the Raichur Doab with special reference to the gold-bearing rocks of the Dharwar bands', *Jour. Hyd. Geol. Surv.*, II, pt. 1 (Hyderabad, 1934), p. 50.

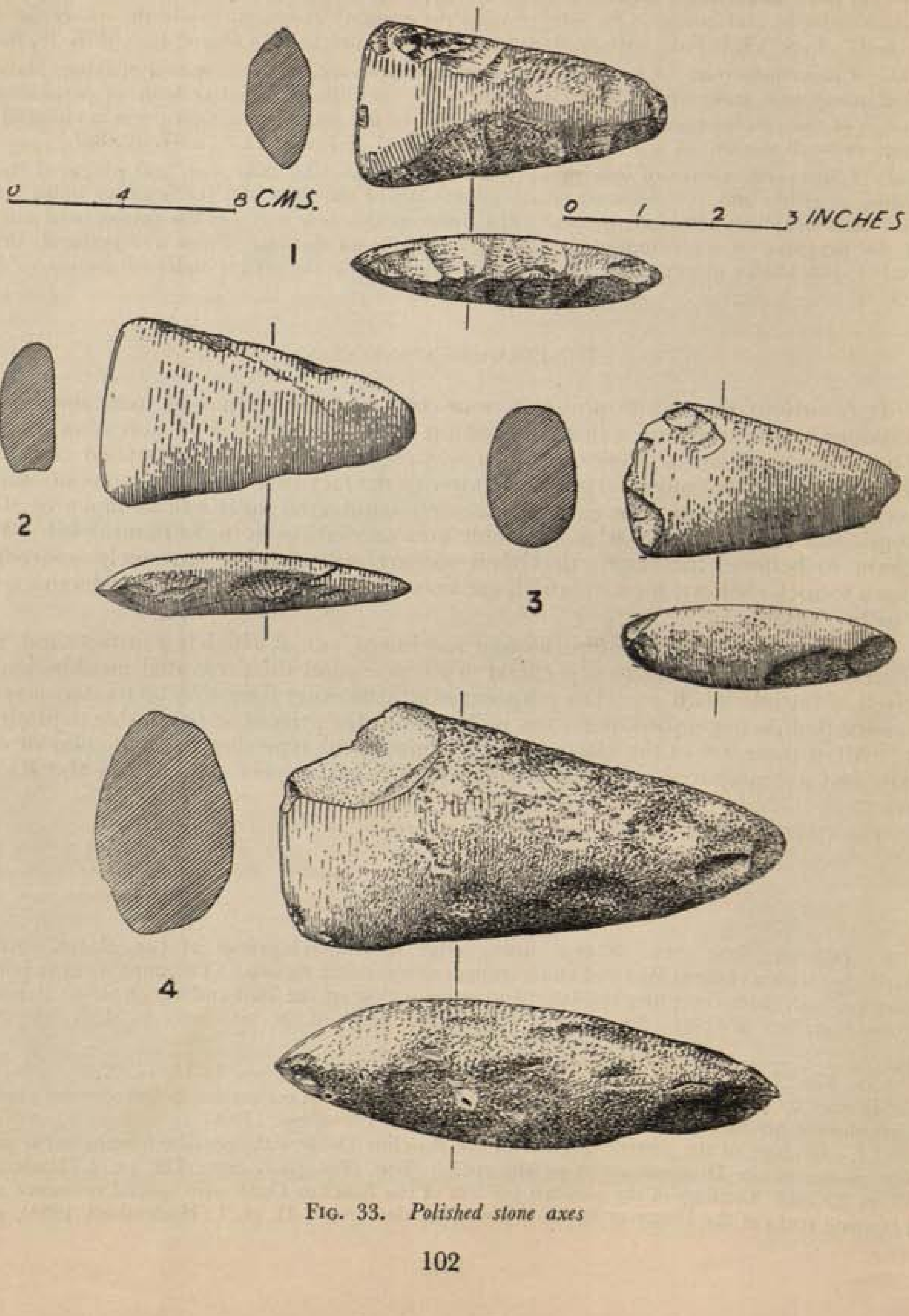


FIG. 33. *Polished stone axes*

2. Dolerite, slate grey. Sharp and unchipped working edge with battered lateral margings. Of the same type as above but with a flat lenticular section. Finely polished all over on both sides. Similar to Brahmagiri type Aiiia.[1] Axe. From a superficial deposit associated with a menhir. (MSK Meg-3, 5.)

3. Dolerite, slate grey. Broken cutting edge. Of the same type as above but with an ovoid section. Polished all over on both sides. Similar to Brahmagiri type Bii. Axe. From a superficial deposit around a menhir. (MSK Meg-1, 2.)

4. Dolerite, slate grey. Partly broken cutting edge with battered surface. Of the same type as above. Polished finely on the cutting edge and roughly all over the surface. Similar to Brahmagiri type B iii. Axe. From surface-collection.

C. Other stone objects

Other stone objects recovered from the present excavation comprise twentynine balls, both spherical and spheroids, one plano-convex pestle, one fragmentary mortar, one disc, one marble and one decorated plaque. Noteworthy amongst these, however, are the spheroid balls showing flattened, occasionally battered, sides, indicative of their use as hammer-stones. Without exception, they are prepared out of the local granite and are of varying size ranging from 1¾ to 3 in. in diameter. Studies in flaking techniques have shown that the production of large primary flakes and the preliminary trimming are most effectively accomplished by bigger hammer-stones whereas for subsequent dressing of flakes smaller hammer-stones give best results. A few specimens show as many as four battered sides, denoting thereby that the particular hammer-stone was worked all around. Although specific use to which the spherical and spheroids (unworked) balls were put is still not determined, it is not altogether unlikely that some of these may be sling-stones or bolas employed as missiles for killing fast-moving game. Apart from this hypothetical use, they have very little significance from a functional point of view which still remains a matter for speculation until more associated material is found showing how the objects were used and other details concerning the daily life of the people who made them.

Out of the twentynine balls including hammer-stones, sixteen (ten hammer-stones, two spherical and four spheroids) came from Period I, ten (two spherical and eight spheroids) from Period II, two (one hammer-stone, a stray piece from the latest level and one spherical) from Period III and one fragmentary example from the Medieval Period, Cutting MSK-12. From the above distribution it would be seen that the hammer-stones with typically battered sides are a feature essentially of Period I, wherein their occurrence in a microlithic assemblage assumes concrete significance. Excepting the plano-convex pestle which was recovered from Period II, the remaining objects came from Period III. Of singular interest, however, are the two spherical balls from Period II found along with the skeleton of a child in the burial of class B(iv) (pl. XII B). These being apparently dear to the child were placed along with the dead body as a part of the funeral furnishings. No stone objects were found in any other burial.

Similar hammer-stones and sling-stones were found at Navda Toli[2] in association with painted pottery and microliths, as also at Brahmagiri,[3] where they occur in all the Periods and are described as spherical and spheroid balls.

The following select examples are illustrated.

[1] *Ancient India*, no. 4, *op. cit.*, pp. 245-49.

[2] Sankalia, Subbarao and Deo, *op. cit.* (1953), p. 354.

[3] *Ancient India*, no. 4, *op. cit.*, p. 253, pl. CXVI.

Pl. XXVI

1. Hammer-stone with four battered sides; granite. From the earliest level of Period I. (MSK-10, 789.)

2. Hammer-stone with three battered sides; granite. From a pit ascribable to the earliest level of Period I. (MSK-10, 1063.)

3. Hammer-stone with two battered sides; granite. From a late level of Period I. (MSK-10, 325.)

4. Hammer-stone with one battered, essentially flattened, side; granite. From the latest level of Period III. (MSK-10, 820.)

5. Ball, spheroid; granite. From the same level as no. 2 above. (MSK-10, 1062.)

6. Ball, spheroid; granite. From a mid-level of Period II. (MSK-10, 59.)

7. Ball; granite. From a late level of Period I. (MSK-10, 863.)

8. Fragmentary decorated plaque; slate stone. From a pit ascribable to the latest level of Period III. (MSK-10, 798.)

9. Disc; sandstone. From a mid-level of Period III. (MSK-10, 721.)

10. Pestle; granite. From a mid-level of Period II. (MSK-10, 1009.)

D. Beads[1]

The excavation yielded a total of three hundred and twentyseven beads including a solitary pendant recovered as follows: Period I, twentythree; Period II, one hundred and nineteen; Period III, one hundred and fiftyseven; Medieval Period, twenty; and unstratified, eight. No beads were obtained from the megalithic burials. Like Brahmagiri, no cores or unfinished beads were found indicating thereby that there was no local industry at the site, though some of the raw material employed was quite ready to hand. Although the area uncovered in respect of Periods I to III was almost the same, beads from Period I are far less in number than those from Periods II and III signifying perhaps that the industry during that Period was not in popular demand.

The material of which the beads are made comprises semi-precious stones (silicon minerals) of both the crystalline and cryptocrystalline varieties of quartz, including rock crystal, amethyst, carnelian, agate, chalcedony, jasper; lapis lazuli of felspathoid family; garnet of amorphous silica family; coral; shell; white paste; glass; and terracotta. Gold and horn are also represented, though only by one example each. Of these, beads of semi-precious stones constitute 46·17 per cent of the total yield (cf. distribution-chart, p. 106). The materials, together with the range of shapes, are dealt with below in order of frequency.

In semi-precious stones carnelian seems to be the favourite bead-material. It accounts for the largest number (fiftytwo) and is distributed in all the Periods, being four from Period I, twentytwo each from Periods II and III, three from the Medieval Period and one from an unstratified deposit. Of these, five (two fragmentary and unillustrated) are etched, two each from Periods II and III and one from an unstratified deposit in a rock-shelter. The design on one of these (pl. XXVII, *8*) is closely parallelled at Porkalam[2] and Brahmapuri (Kolhapur)[3] where it is attributed to the early centuries of the Christian

[1] The method of classification adopted here is that of H. C. Beck, 'Classification and nomenclature of beads and pendants', *Archaeologia*, LXXVII (1928), pp. 1 ff.

[2] Thapar, *op. cit.*, pp. 14-15; fig. 5, *5*.

[3] H. D. Sankalia and M. G. Dikshit, *Excavations at Brahmapuri (Kolhapur) 1945-46* (Poona, 1952), p. 87, fig. 30, *9* and pl. XXXVII, *8*.

era. The commonest shape in this material, however, is the spherical type (seventeen specimens), which occurs in all the Periods in a fair proportion. Other forms include long barrel circular (pl. XXVII, *9*) (seven examples) from Periods I to III; long barrel pentagonal (one example) from Period II; long cylinder circular (three examples) from Periods II and III; long convex circular (pl. XXVII, *11*) (four examples) from Periods II, III and the Medieval Period; long bicone circular and hexagonal (pl. XXVII, *16*) (five examples) from Periods II and III; long bicone tabular (pl. XXVII, *18*) (one example) from Period III; standard circular tabular (pl. XXVII, *32*) (six examples) from Periods II and III; short cylinder circular (five examples); short bicone circular (pl. XXVII, *26*) (one example) from Period II; standard barrel square faceted (one example) from Period III; and standard faceted pentagonal (one example) from Period III.

Coral is the material for thirtyone beads and is distributed in all the Periods including the Medieval Period. None of the specimens, however, possesses the fine deep pink colouring of the Mediterranean variety (*corallium rubrum*). It is quite likely, therefore, that the material was obtained from the Indian seas themselves. It is represented mainly in two shapes, viz. the standard or long cylinder circular (pl. XXVII, *5* and *13*) and spherical or spheroid (pl. XXVII, *3*). Of these, the former constitute the larger majority. The standard cylinder circular (nine examples) is available in all the Periods, while the long cylinder circular (nine examples) and spherical or spheroids (eleven examples) are found only in Periods II and III. A unique shape is that of a standard bicone hexagonal from Period II (pl. XXVII, *22*). The remaining examples are deformed.

Of the twentyseven jasper beads, twentythree are of green variety (possibly prase), the remaining four being of the usual red type. Both these varieties are available only in the spherical form (pl. XXVII, *1*). The green ones range from $\frac{1}{4}$ to $\frac{3}{4}$ in. and the red ones from $\frac{1}{2}$ to 1 in. in diameter. Their occurrence is confined to Periods II and III, being eighteen of the green and one of the red from Period II and five of the green and three of the red from Period III.

Lapis lazuli is represented by fourteen beads, six from Period II, seven from Period III and one from an unstratified deposit. This material is not found locally in India and must have been imported from outside.[1] The range of shapes is also limited to (a) long cylinder rectangular (one example only) from Period II; (b) long cylinder square (pl. XXVII, *37*) (seven examples) from Periods II and III, including that from the unstratified deposit and (c) long cylinder circular (pl. XXVII, *14*) (three examples) from Period II. The remaining three examples are the fragmentary spacing beads (pl. XXVII, *38*) from Periods II and III.

Of quartz two varieties, viz. greasy translucent and the crystal transparent (rock crystal) were used. They account for three and six beads respectively. The shapes represented in the former are, long barrel circular (pl. XXVII, *12*) (one example) from Period II and spherical (two examples) from Period III and in the latter, spherical (two examples) from Period III; long barrel square (pl. XXVII, *36*) (one example) from Period III; and standard bicone circular (pl. XXVII, *27*) from Period III. The remaining example is a fragmentary bit from the Medieval Period.

Chalcedony is another material which occurs in all the Periods. Only six beads of this material were obtained, one each from Periods I and II and four from Period III. The shapes represented are: (a) spherical from Period I; (b) long barrel circular from

[1] Important sources of lapis lazuli are in Afghanistan, near Baikal, Siberia and Chile. Cf. *Dana's Manual of Mineralogy* (New York, 1953), p. 340.

Period II and long convex circular (pl. XXVII, *10*) (one example) from Period III. The remaining three beads from Period III are spherical.

Garnet is the material for five beads, three of which, all spherical, were recovered from Period II and two, one spherical and one long cylinder hexagonal, from Period III (pl. XXVII, *28*).

TABLE SHOWING PERIOD-WISE DISTRIBUTION OF BEADS OBTAINED AT MASKI, CLASSIFIED ACCORDING TO THEIR MATERIALS

Material	*Period I*	*Period II*	*Period III*	*Medieval Period*	*Unstratified*	*Total*
Silicon minerals						
Quartz	...	1	2	...	...	3
Rock crystal ...	...	...	5	1	...	6
Amethyst	1	...	1	...	...	2
Carnelian	4	22 (including 2 etched)	22 (including 2 etched)	3	1 (etched)	52
Agate	1	2	2 (including 1 etched)	...	...	5
Chalcedony ...	1	1	4	...	...	6
Jasper	...	red: 1 green: 18	red: 3 green: 5	...	...	27
Lapis Lazuli ...	...	6	7	...	1	14
Garnet	...	3	2	...	...	5
Coral	2	8	20	1	...	31
Shell	5	17	38	2	1	63
Glass	4	6	21	12	2	45
Paste	5	15	6	...	2	28
Terracotta	...	14	10	1	1	26
Gold	...	1	...	...	...	1
Horn	...	1	...	...	...	1
Indeterminate	...	3	9	...	...	12
Total ...	23	119	157	20	8	327

Agate is used for five beads of which one was obtained from Period I and two each from Periods II and III. The shapes represented are: (a) spherical (two examples), one

each from Periods I and III, the latter specimen being etched in white; (pl. XXVII, *2*); (b) long bicone hexagonal (pl. XXVII, *19*) (one example) from Period II; and (c) long barrel circular (one example) from Period II and long cylinder circular (one fragmentary example) from Period III.

Only two amethyst beads, one each from Periods I and III, were obtained. The former is of standard convex lenticular type (pl. XXVII, *20*) while the latter differs from it in being bicone tabular. Both the shapes are, however, related to each other.

Shell beads numbered sixtythree, being five from Period I, seventeen from Period II, thirtyeight from Period III, two from the Medieval Period and one from an unstratified deposit. The commonest shape obtained is the short cylinder circular (twentyseven examples) found in Periods II and III. Related to this and equally frequent is the standard cylinder circular (pl. XXVII, *6*) (twentythree examples) from Periods I to III. Other available forms include standard cylinder square (two examples) from Period III, spherical and deformed spherical (six examples) from Periods II and III, circular tabular (one example) from Period II and standard barrel circular (one example) from Period I; the remaining three are ill-defined.

Glass formed the material for fortyfive beads distributed as follows: Period I, four; Period II, six; Period III, twentyone; Medieval Period, twelve; and unstratified, two. The range of colour is limited. Shades of blue and green are the most common colours throughout the whole occupation including the Medieval Period. Other colours represented are black, yellow, white, amber and shellac red. The material is either translucent or opaque. The commonest shape is the standard cylinder (or sometimes barrel) circular (pl. XXVII, *7*) of which no fewer than thirtythree examples were recovered from Periods I to III and the Medieval Period. Other forms comprise bicone truncated circular (one example) from Period II, bicone circular (pl. XXVII, *25*) (one example) from the Medieval Period, spherical (pl. XXVII, *4*) (four examples) from Period III, long cylinder grooved circular (pl. XXVII, *29*) (two examples) from Period III; long convex square (one example) from Period III; and long cylinder circular (three examples) from the Medieval Period.

White paste comprised the material for twentyeight beads, being five from Period I, fifteen from Period II, six from Period III and two from an unstratified deposit in a rock-shelter. The most favourite shape in this material is the disc cylinder (pl. XXVII, *35*) which accounts for sixteen examples from Periods I to III. A noteworthy shape, however, is the concave-sided square (star-shaped) tabular type decorated with four incised circles on each side (pl. XXVII, *31*). Two such examples were recovered from Period I while another fragmentary specimen of an identical shape was found from the infilling of a megalithic burial, doubtless belonging to the strata cut into for the burial-pit and used thereafter as a filling. Other forms met with are the spherical (four examples) from Period III; standard cylinder circular (two examples) from Period II; long gourd-shaped circular (pl. XXVII, *30*) (two examples) from Period II; and long bicone circular (solitary example) from Period I (pl. XXVII, *23*).

One bead each was made of horn and gold, both from Period II. The former, though fragmentary was of collared tabular type (pl. XXVII, *34*) while the latter was standard convex hexagonal (pl. XXVII, *21*).

Terracotta accounted for twentysix beads. No such beads were found in Period I. Period II yielded fourteen and Period III, ten; one each came from the Medieval Period and the unstratified deposit in a rock-shelter, the latter specimen being a pendant

(pl. XXVIII A, *47*). These beads are either pear-shaped,[1] truncated at the apex (pl. XXVIII A, *41-44*) (nine examples) from Periods II and III including the Medieval Period or roughly spherical (pl. XXVIII A, *45*) (two examples) from Periods II and III or standard barrel circular (pl. XXVIII A, *46*) (three examples) from Period III or whorl circular beads (pl. XXVIII A, *39, 40*) (ten examples) from Period II or long cylinder square (pl. XXVIII A, *48*) (one example) from Period II. Some of them are also dressed with a black slip.

The remaining twelve beads, three from Period II and nine from Period III, are of an indeterminate material. The range of shapes are spherical, short cylinder circular, long barrel circular and circular tabular.

The following selected examples are illustrated.

Pls. XXVII and XXVIII A

1. Jasper green (prase) spherical. From an early level of Period III. (MSK-10, 608.)

2. Agate, etched in white showing pentagons with common sides: spherical. From the latest level of Period III. (MSK-10, 647.) A similar specimen is also available at Taxila.[2] The etched pattern is, however, quite common on beads recovered from sites in north India, notably Kausambi, Bhita, Mathura, Rajghat, Sankisa, Bangarh and Ahichchhatra.[3]

3. Coral: spheroid. From a late level of Period II. (MSK-10, 730.)

4. Glass: wax red, opaque: spherical. From an early level of Period III. (MSK-10, 51.)

5. Coral: standard cylinder circular. From an early level of Period I. (MSK-10, 157.)

6. Shell; standard cylinder circular. From an early level of Period I. (MSK-10, 769.)

7. Glass, blue, opaque: standard barrel circular. From a late level of Period I. (MSK-10, 1082.)

8. Carnelian, etched in white showing a zigzag line enclosed within double marginal lines: long cylinder circular. From a late level of Period II. (MSK-10, 651.)

9. Carnelian, etched in white showing hexagons having common sides: long barrel circular. From an early level of Period III. (MSK-10, 877.) The etched pattern, however, is quite common on beads recovered from sites in north India, notably Bhita, Masaon, Mathura, Rairh and Bahal.[4]

10. Chalcedony: long convex circular. From a late level of Period III. (MSK-10, 38.)

11. Carnelian: long convex circular. From an early level of Period I. (MSK-10, 794.)

12. Quartz (greasy white): long barrel circular. From a late level of Period II. (MSK-10, 42.)

13. Coral: deformed long cylinder circular. From an early level of Period III. (MSK-10, 134.)

14. Lapis lazuli: long cylinder circular. From a mid-level of Period II. (MSK-10, 251.)

15. Carnelian: long convex hexagonal. From an early level of Period III. (MSK-10, 617.)

16. Carnelian: long bicone hexagonal. From an early level of Period I. (MSK-10, 750.)

17. Carnelian: long convex square faceted. From an early level of Period III. (MSK-10, 869.)

18. Carnelian: long bicone tabular. From an early level of Period III. (MSK-10, 743.)

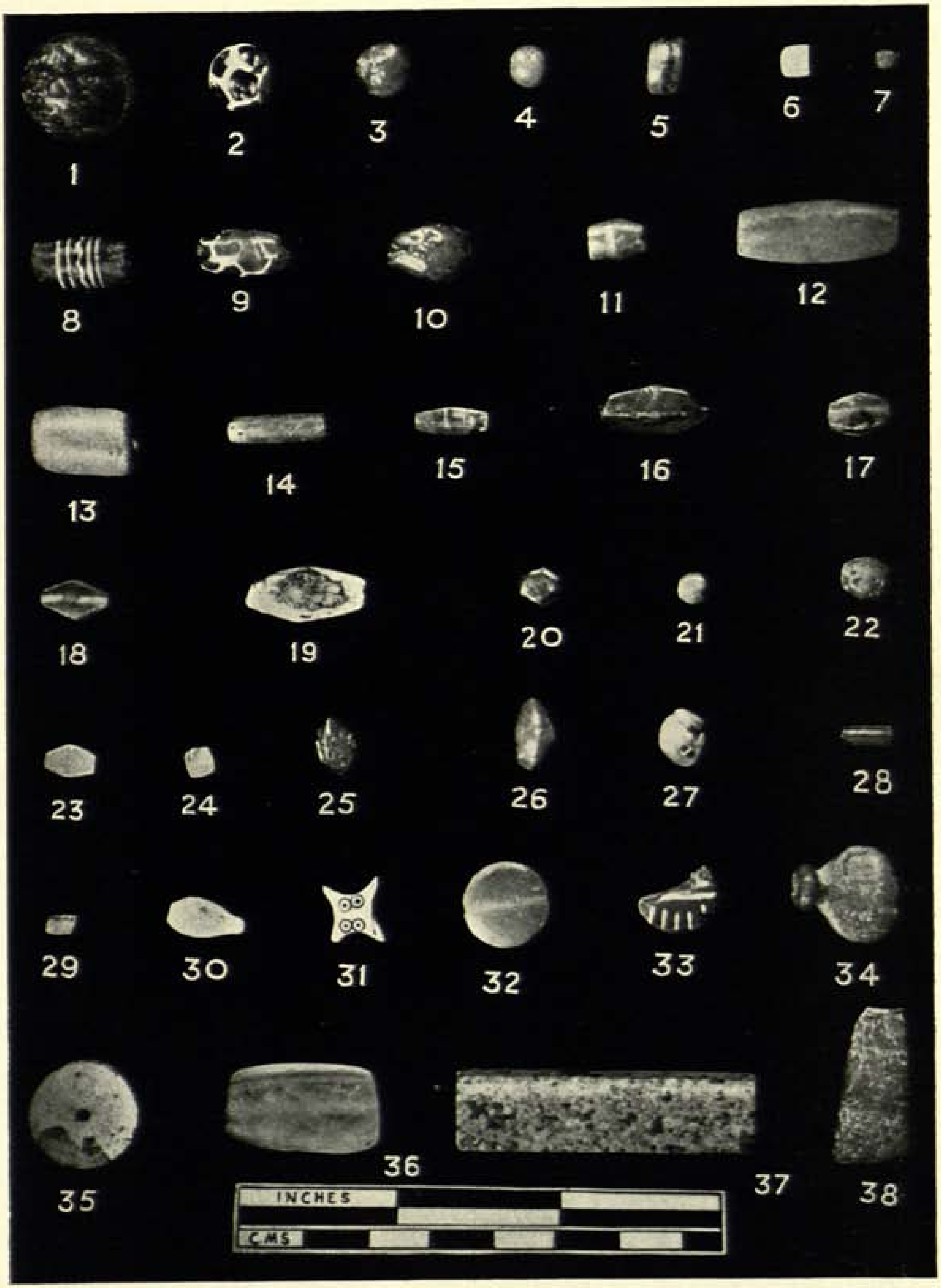
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[1] For the distribution of this shape of beads which is described as areca-nut shape, see Sankalia and Deo, *op. cit.*, p. 92.

[2] H. C. Beck, *Beads from Taxila*, Mem. Arch. Surv. Ind., no. 65 (Delhi, 1941), pl. II.

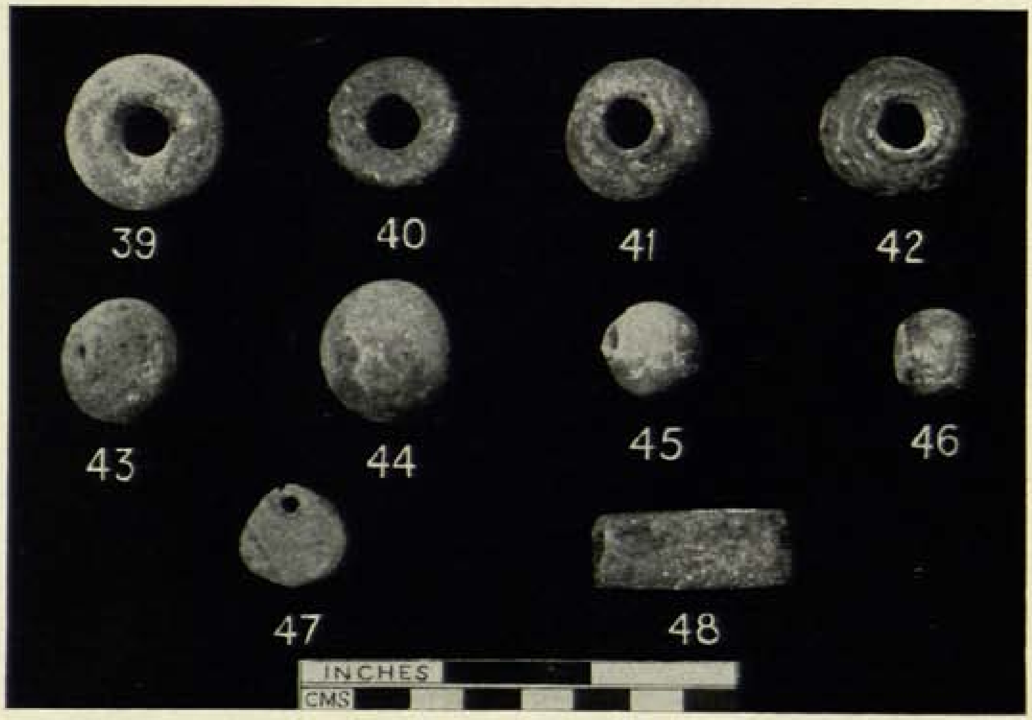
[3] M. G. Dikshit, *Etched Beads in India* (Poona, 1949), pp. 19 and 30 and pl. V.

[4] *Ibid.*, pp. 22, 23 and 30 and pl. V.



Beads : 1, 2, 4, 9, 10, 13, 15, 17, 18, 24, 27-29, 32 and 36-38, Period III ; 3, 8, 12, 14, 19, 21, 22, 26, 30, 34 and 35, Period II ; 5-7, 11, 16, 20, 23 and 31, Period I ; 25, Medieval Period ; 33, unstratified. See pages 104-09

 To face page 109



A. *Terracotta beads and pendant : 39-42, 44-45 and 48, Period II ; 43 and 46, Period III ; 47, unstratified.* *See page 109*



B. *Terracotta figurines, Period III.* *See page 110*

19. Agate: long bicone hexagonal. From a mid-level of Period II. (MSK-10, 141.)

20. Amethyst: standard convex lenticular. From a late level of Period I. (MSK-9, 18.)

21. Gold: standard convex hexagonal. From a mid-level of Period II. (MSK-10, 890.)

22. Coral: standard bicone hexagonal. From a late level of Period II. (MSK-10, 225.)

23. Paste: long bicone circular. From a mid-level of Priod I. (MSK-10, 974.)

24. Glass, yellow, translucent: standard faceted. From a pit ascribable to Period III. (MSK-9, 41.)

25. Glass, black, opaque: standard bicone circular. From a late level of the Medieval Period. (MSK-12, 33.)

26. Carnelian: short bicone circular. From an early level of Period II. (MSK-10, 367.)

27. Quartz (rock crystal): standard bicone circular. From a late level of Period III. (MSK-10, 768.)

28. Garnet: long cylinder hexagonal. From the latest level of Period III. (MSK-10, 2.)

29. Glass, blue, translucent: long cylinder grooved circular. From the latest level of Period III. (MSK-10, 192.)

30. Paste: long gourd-shaped circular. From a mid-level of Period II. (MSK-10, 1031.)

31. Paste: standard concave-sided square (star-shaped) tabular showing four incised circles with dots. From a mid-level of Period I. (MSK-10, 745.)

32. Carnelian: standard circular tabular. From the latest level of Period III. (MSK-10, 661.)

33. Carnelian, etched in white (incomplete design): of the same shape as above. From an unstratified deposit in a rock-shelter. (MSK CV-1, 24.) The etched pattern is quite common on beads recovered from sites in south India. Similar specimens were recorded by Foote from some cairns in the Nilgiri Hills.[1]

34. Horn: standard collared tabular. From a mid-level of Period II. (MSK-10, 133.)

35. Paste: disc cylinder circular. From an early level of Period II. (MSK-10, 668.)

36. Quartz (rock crystal): long barrel sqaure. From a late level of Period III. (MSK-10, 371.)

37. Lapis lazuli: long cylinder square. From the latest level of Period III. (MSK-10, 318.)

38. Lapis lazuli: fragmentary spacing bead with four perforations. From a late level of Period III. (MSK-10, 373.)

39. Terracotta: whorl or annular, bicone circular. From an early level of Period II. (MSK-10, 853.)

40. Terracotta: whorl or annular cylinder circular. From a late level of Period II. (MSK-10, 740.)

41. Terracotta: pear-shaped truncated and weakly collared. From a late level of Period II. (MSK-10, 484.)

42. Terracotta, treated with a black slip: pear-shaped truncated and weakly collared. From an early level of Period II. (MSK-10, 770.)

43. Terracotta: pear-shaped. From a late level of Period III. (MSK-10, 13.)

44. Terracotta: pear-shaped. From a late level of Period II. (MSK-10, 573.)

45. Terracotta: spherical. From a late level of Period II. (MSK-10, 265.)

46. Terracotta, treated with a black slip: standard barrel circular. From an early level of Period III. (MSK-10, 170.)

47. Terracotta: pendant. From an unstratified deposit in a rock-shelter. (MSK CV-1, 26.)

48. Terracotta: long cylinder square. From a late level of Period II. (MSK-10, 319.)

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[1] R. B. Foote, *Catalogue of Prehistoric Antiquities in the Madras Museum* (Madras, 1901), p. 74 and pl. XIII, *844*.

E. Terracotta objects

(i) *Figurines*

Excavations at Arikamedu[1] and Brahmagiri[2] have already indicated the infrequency of terracotta figurines, both human and animal on south Indian sites.[3] This contention harmonizes with the evidence from Maski where the 1954-excavation yielded only two terracotta figurines, one each of human and animal variety. Both of these were recovered from the latest levels of Period III.

Pl. XXVIII B

1. Torso of a standing female figure; moulded in the round. The left hand is placed akimbo, while the right is almost pendant and assumably holds some object. The upper part of the body is bare and shows a necklace hanging between the breasts and a torque, possibly inlaid with precious stones. Other ornaments on the body include bangles. The folds of the drapery are also seen between the legs. On the back is seen a single plait of hair coming upto the waist. From the latest level of Period III. (MSK-10, 97.)

2. Upper part of a bird, possibly a parrot; hand-modelled. The eyes, the nose and the neck are emphasized by incised lines. From a pit belonging to the latest level of Period III. (MSK-10, 635.)

(ii) *Miscellaneous objects*

In addition to the above figurines, various other terracotta objects were recovered from the excavation. They include flesh-rubbers, gamesmen, terracotta 'marbles', spools and discs, both pierced and unpierced. The pierced ones constitute the majority. Both these varieties are mostly made from potsherds and are of an uncertain use. The collection also includes a couple of ornamented unpierced discs prepared out of moulds. While the unpierced ones could be gaming counters possibly used in hop-scotch game by children, the pierced ones could be either spindle-whorls or toy cart-wheels. These discs occur in all the Periods at Maski, being also found in characteristic grey ceramic fabric in the strata ascribable to the Medieval Period (Cutting MSK-12). Of particular interest, however, are a painted pierced specimen from Period I (fig. 9, *12*; pl. XXIX A, *9*) and a plain unpierced one from the grave pit of a child (Period II, megalithic burial of Class B(iv) pl. XXIX A, *12*), who possibly played with it during his or her life-time. This association of the unpierced disc with the child lends further strength to the surmise of its being used in hop-scotch game. The varying size of the pierced ones, on the other hand, would preclude their usage entirely as spindle-whorls, and it is doubtful whether spindles existed in Period I, wherein besides one indeterminate copper rod (below p. 114; fig. 34, *1*) no metal objects were met with.

Such pottery discs, including the decorated ones, are also known at Brahmagiri[4] and Hastināpura.[5] Significantly enough at both these places the earliest pierced specimens

[1] *Ancient India*, no. 2, *op. cit.*, p. 102, pl. XXXV A.

[2] *Ibid.*, no. 4, *op. cit.*, p. 269, pl. CXXI.

[3] Kondapur in Medak District of the former Hyderabad State, however, provides a noteworthy exception to this generalization. Cf. *An. Rep. Arch. Dept. H.E.H. the Nizam's Dominions for the year 1940-41*, pls. II-IV; also G. Yazdani, 'Excavations at Kondapur—an Andhra Town (*cir.* 200 B.C. to 200 A.D.), *Annals of the Bhandarkar Oriental Research Institute*, XII, pts. III-IV (1941), pp. 177-78 and pls. VIII-XI.

[4] *Ancient India*, no. 4, *op. cit.*, p. 269, pl. CXXII.

[5] *Ibid.*, nos. 10 and 11, *op. cit.*, p. 88, pl. XLVI.

are associated with copper. Other sites in the Gangetic plain have also yielded such discs.

The selected specimens are listed below.

Pl. XXIX A

1. Flesh-rubber of rectangular section. From a pit ascribable to the latest level of Period III. (MSK-10, 706.)

2. Fragment of a gamesman or the distal end of an ear-ornament. From a mid-level of Period II. (MSK-10, 859.)

3. Decorated lid. From the earliest level of Period III. (MSK-10, 975.)

4. Spool with flat profile, possibly an ear-ornament. From the latest level of Period III. (MSK-11, 14.)

5. Spool with convex profile, possibly an ear-ornament. From the same level as above. (MSK-11, 15.)

6. Cone of friable material. From a pit ascribable to the earliest level of Period I. (MSK-10, 822.)

7. Cone-shaped stopper. From a mid-level of Period II. (MSK-10, 261.)

8. Object of indeterminate use. From an early level of Period III. (MSK-10, 602.)

9. Perforated disc made of a sherd of painted ware with chocolate linear designs on pinkish buff surface. From a pit ascribable to the earliest level of Period I. (MSK-10, 1071.) Also fig. 9, *12*.

10. Perforated disc made of a sherd of dull red ware. From an early level of Period II. (MSK-10, 686.)

11. Perforated disc made of a sherd of burnished grey ware. From a late level of the Medieval Period. (MSK-12, 50.)

12. Disc made of a sherd of red-slipped ware. From the burial-pit B(iv) ascribable to an early level of Period II. (MSK-10, 1094.)

13. Disc decorated with a wheel-design showing the central hub along with spokes. From the latest level of Period III. (MSK-10, 376.)

14. Marble. From a late level of Period II. (MSK-10, 982.)

F. Bangles and rings

The bangles recovered from the present excavation are mostly made of shell and glass. The collection includes three fragmentary copper bangles (fig. 34, *2* to *4*) and one ring-like object of iron (fig. 37, *19*) in a badly corroded state. Another noteworthy material which accounts for four examples is a vitreous paste prepared out of ground glass.[1]

No bangles were recovered from Period I or from the burials of Period II. Shell bangles which constitute the majority, being thirty-eight out of a total of fiftyseven specimens recovered from the excavation seem to be more popular in Period III than in Period II, where their occurrence, being only three in number, is confined to middle and late levels. It is comprehensible, therefore, that the industry, though existing in Period II in an elementary stage, became advanced and distinctive in Period III. This inference is further corroborated by the fact that the specimens belonging to Period II are plain, while those of Period III show carved designs in a good many cases. The decorative

[1] Chemist's report.

ornamentations of these later specimens comprise: (a) button, (b) marginal file-edge and (c) cable motifs. A few fragments of cut conch-shells have also been found denoting a local rather than an imported industry. It may be noted that being sawn out of shells, the bangles are not perfectly circular in shape and often take the form of a bow.

The evidence at Brahmagiri is quite consistent with the above conclusion. The range of shell bangles there is essentially confined to Period III, Period II having yielded only one fragment.[1]

Out of the fourteen specimens of glass bangles, all incomplete, only two come from Period II, while the remaining twelve from Period III. The colours obtained are sea-green, turquoise-green, amber, red, blue and yellow. But for a couple of translucent examples, all of these are opaque. Instances of stratified glass also occur. In one such case (pl. XXIX B, *14*) a strip of opaque yellow is seen on translucent amber relieved on the top with small brownish dots, while in another (pl. XXIX B, *16*) yellow wire-like strips form the binding edges for a channelled surface of sea-green. Both these specimens of stratified glass came from the latest level of Period III. It is not unlikely, therefore, that these may be stray bits.[2] The upper levels at Brahmagiri have also yielded two such examples to complete the parallelism with Maski finds.[3]

The use of glass bangles in India prior to the Christian era is not precisely determined.[4] The evidence is admittedly scanty for any convincing assessment. Both at Brahmagiri and Śiśupālgarh,[5] the occurrence of glass bangles did not go earlier than the first century A.D. At Arikamedu also, the only glass bangle found was from a superficial and unstratified deposit in the Southern Sector.[6] The story is repeated in an extreme form at Nasik, where no glass bangles were known even down to the end of Period III (*circa* 200 A.D.)[7] A few glass bangles recovered at Kumrahar near Patna also belong to *circa* A.D. 300-450.[8] At Baroda, the lowest occurrence of glass bangles was noticed in Period III, ascribable to the early centuries of the Christian era.[9] At Brahmapuri (Kolhapur) three pieces of plain monochrome glass bangles are reported from Śātavāhana layers.[10] Bhīr Mound (Taxila I),[11] Hastināpura[12] and Rupar[13] are the three recorded sites which have provided stratigraphic evidence of the use of glass bangles in *circa* fifth century and ninth-eighth century B.C. respectively. At the latter two sites they were also associated with the Painted Grey Ware. With this evidence, obtained under closely-observed conditions, the occurrence of plain glass bangles at Periano-Ghundai and Dabarkot in northern Baluchistan,[14]

[1] *Ancient India*, no. 4, *op. cit.*, p. 260.

[2] Similar samples of polychrome glass bangle pieces from Maski ascribable to *circa* fourteenth-fifteenth century A.D. have been analysed by Dr. B. B. Lal. Cf. B. B. Lal, ' Studies in early and medieval Indian ceramics—some glass and glass-like artefacts from Bellary, Kolhapur, Maski, Nasik and Maheswar ', *Deccan College Bulletin*, XIV, no. 1, pp. 51-52 and pls. III and IV.

[3] *Ancient India*, no. 4, *op. cit.*, p. 263, pl. CXVIII, *10* and *11*.

[4] *Ibid.*, p. 263.

[5] *Ibid.*, no. 5, *op. cit.*, p. 89.

[6] *Ibid.*, no. 2, *op. cit.*, p. 108.

[7] Sankalia and Deo, *op. cit.*, pp. 96-97 and 29 and 20.

[8] Information from Shri Vijayakant Misra, Research Fellow, K. P. Jayaswal Research Institute, who conducted the excavation.

[9] Subbarao, *op. cit.* (1953), pp. 71-72.

[10] Sankalia and Dikshit, *op. cit.* (1952), p. 117.

[11] John Marshall, *Taxila*, II (Cambridge, 1951), p. 684.

[12] *Ancient India, no.* 4, *op. cit.* (1954-55), pp. 13 and 90 and pl. LIII, *1* and *2*.

[13] Information from Dr. Y. D. Sharma.

[14] Aurel Stein, *An Archaeological Tour in Waziristan and Northern Baluchistan*, Mem. Arch. Surv. Ind., no. 37 (Calcutta, 1929), pp. 40, 41, 60 and 61.

Turbat and Shahi Tump in southern Baluchistan[1] in admittedly chalcolithic assemblage assumes corroborative validity. We need not, therefore, postulate the origin of glass bangles in India somewhere in the early medieval times.[2] On the basis of the foregoing evidence, there is no compunction to conclude that the plain monochrome glass bangles were known in India at least in the first half of the first millennium B.C., while the decorated polychrome ones were introduced only in the thirteenth-fourteenth century A.D.[3] The two bangle pieces from Period II at Maski (pl. XXIX B, *12* and *13*) are an evidence in the same direction, and it is hoped that future work would add further facts.

Two specimens of finger-rings, both of shell, were also recovered from a late level of Period III.

The following are selected for illustration.

Pl. XXIX B

1. Sawn end of a conch-shell. From a pit ascribable to the latest level of Period III. (MSK-10, 690.)

2. Same as above. Also from the same horizon. (MSK-10, 690E.)

3. Fragment of a shell bangle, oblong in section. From a pit ascribable to a late level of Period III. (MSK-10, 634.)

4. Fragment of a shell bangle, rectangular in section. From a late level of Period II. (MSK-10, 989.)

5. Fragment of a shell bangle, rectangular in section. From a mid-level of Period III. (MSK-10, 843.)

6. Fragment of a shell bangle, oblong in section and decorated with a button-motif. From the same level as no. 1 above. (MSK-10, 685.)

7. Fragment of a shell bangle, oblong in section and decorated with marginal file-edge design. From the same level as above. (MSK-10, 666.)

8. Fragment of a shell bangle, rectangular in section and decorated with a bow-design. From a late level of Period III. (MSK-10, 806.)

9. Fragment of a shell bangle, rectangular in section and decorated with rope-design. From an early level of Period III. (MSK-10, 874.)

10. Fragmentary bracelet of vitreous paste. From a mid-level of Priod II. (MSK-10, 720.)

11. Fragmentary bracelet of blue opaque glass. From an early level of Period III. (MSK-10, 582.)

12. Fragmentary bracelet of violet opaque glass. From a mid-level of Period II. (MSK-10, 285.)

13. Fragmentary bangle of green[4] translucent glass, circular in section. From a late level of Period II. (MSK-10, 714.)

14. Fragmentary bangle of stratified glass (a strip of opaque yellow on translucent amber and relieved by brown dots). From the latest level of Period III. (MSK-10, 640.)

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[1] Aurel Stein, *An Archaeological Tour in Gedrosia*, Mem. Arch. Surv. Ind., no. 43 (Calcutta, 1931), pp. 55 and 93.

[2] H. D. Sankalia, ' The antiquity of glass bangles in India ', *Bull. Deccan Coll. Res. Inst.*, VIII, 1947 (Poona, 1949), pp. 252-59.

[3] Dr. Sankalia also agrees with these conclusions now, since most of the evidence recorded above was brought to light only after his article referred to above was published.

[4] It is curious to note that at Taxila, green bangles are rarer after the second century B.C. than before. Marshall, *op. cit.*, II, p. 742.

15. Fragmentary bangle of stratified glass (two strips of opaque yellow binding opaque green and relieved on top with yellow and green rope-design). From the latest level of Period III. (MSK-10, 656.)

16. Fragmentary bangle of stratified glass (two strips of opaque yellow binding a chanelled green). From the latest level of Period III. (MSK-10, 1113.)

17. Fragment of a shell finger-ring. From a mid-level of Period III. (MSK-10, 284.)

G. Metal objects

(i) *Copper*

The present excavation yielded only thirteen copper objects, of which seven are mere shapeless bits. They are found variously in all the Periods of occupation and are distributed as follows: Period I, one; Period II, four; Period III, four and Cutting MSK-12, four. Noteworthy amongst these, however, are a rod of uncertain use from Period I (fig. 34, *1*,) and a rattle from the Medieval Period, Cutting MSK-12 (fig. 34, *7*). The latter is closely parallelled by a specimen each from Arikamedu,[1] where it is ascribed to the Late Drain Period (second century A.D.) and from Brahmagiri,[2] ascribable to *circa* third century A.D.

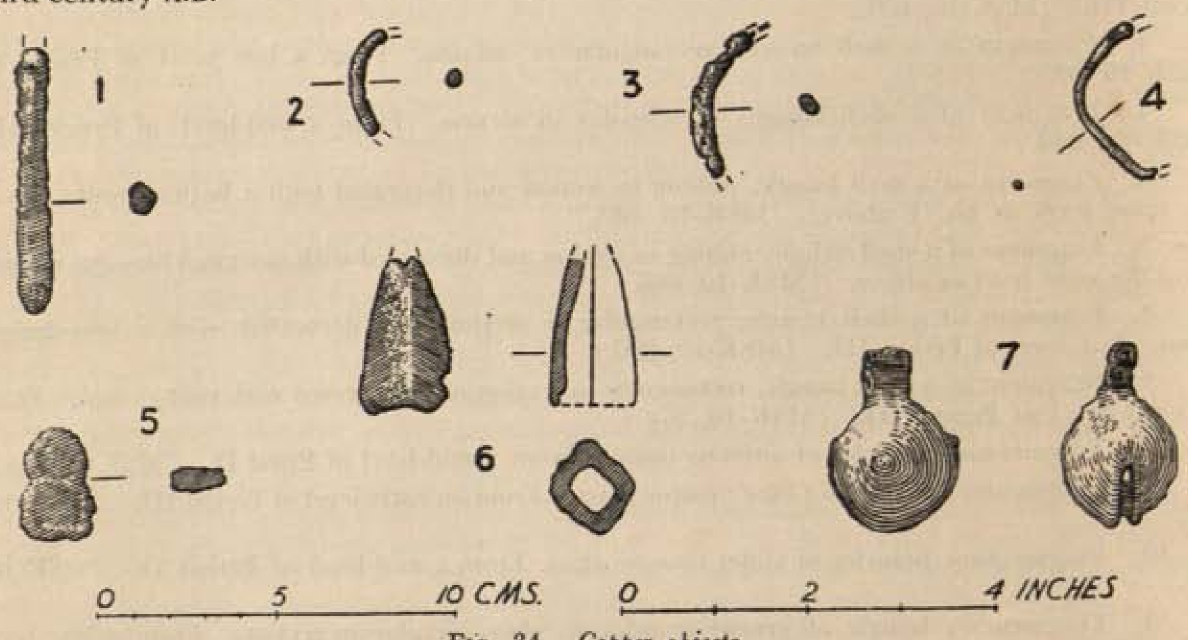


FIG. 34. *Copper objects*

The selected specimens are listed below.

Fig. 34

1. Rod of indeterminate use of roundish section. From a mid-level of Period I. (MSK-10, 410.)

2. Fragmentary bangle of round section. From an early level of Period III. (MSK-10, 55.)

[1] *Ancient India*, no. 2, *op. cit.*, pp. 103 and 104, fig. 43, *5*.
[2] *Ibid.*, no. 4, *op. cit.*, p. 268, fig. 41, *9*.

3. Fragmentary bangle of elliptical section. From the latest level of Period II. (MSK-10, 448.)

4. Fragmentary bangle of round section. From the infilling of a pit cut into the chalcolithic strata. (MSK-10, 1025.)

5. Object of indeterminate use resembling Arabic numeral 8 and of flattish section. From a mid-level of Period III. (MSK-10, 149.)

6. A four-sided conical miniature object (probably a broken bell). From an early level of Period III. (MSK-10, 211).

7. Rattle with a slit and a double loop for suspension. From the Medieval Period. (MSK-12, 24.)

(ii) *Iron*

The number of iron objects recovered from the present excavation totals only fiftyeight, including shapeless and indeterminate lumps. Their occurrence is confined to Periods II and III in Cutting MSK-10 as also the Medieval Period in Cutting MSK-12. They are far more numerous in Period II than in the other strata and range as follows: Period II, thirtytwo; Period III, twelve; Medieval Period, twelve; and two from an unstratified deposit. The aggregate of thirtytwo from Period II also includes ten objects recovered from the megalithic burials,[1] out of which B(v) alone accounts for five, the remaining five being distributed in B (ii) and B(i) as two and three respectively. Of these, a lance from B(v) (fig. 35, *3*), an axe from B(ii) (fig. 35, *5*) and a knife-blade and a tanged arrow-head from B(i) (fig. 36, *7* and *8*) are noteworthy.

No iron object was, however, found in burials B(iii) and B(iv). This may perhaps be purely accidental as in the case of Megalith V at Brahmagiri.[2] It may be recalled that iron is a necessary adjunct of the South Indian megalithic culture and its absence from a few burials does not signify anything beyond the fact that the people responsible for these particular burials did not deposit any iron object therein due to some unknown reasons or customs, for they were no doubt iron-using people.

Amongst the notable objects from the occupation-levels, mention may be made of a chisel (fig. 37, *16*), a tanged arrow-head (fig. 37, *17*), a ferrule (fig. 37, *20*), a dagger-blade (fig. 37, *22*) and a sickle-blade (fig. 37, *24*).

Selected objects are listed below.

From the burials (Figs. 35 and 36)

1. Blade of a knife or dagger. From B(v). (MSK Meg-2, R3.)

2. Fragmentary handle of a lance, possibly with a round section. From B(v). (MSK Meg-2, R4.)

3. Lance or a sword with blade, lenticular in section. From B(v). (MSK Meg-2, R2.)

4. Fragmentary lance. From B(v). (MSK Meg-2, R1.)

5. Axe with oblong section. From B(ii). (MSK-9, 67.)

6. Blade of a dagger. From B(ii). (MSK-9, 83.)

[1] Since the objects were in an advanced stage of decay and were very fragile, the drawings were prepared *in situ* as at Brahmagiri. *Cf. Ancient India*, no. 4, *op. cit.*, p. 254.

[2] *Ancient India*, no. 4, *op. cit.*, pp. 190-92.

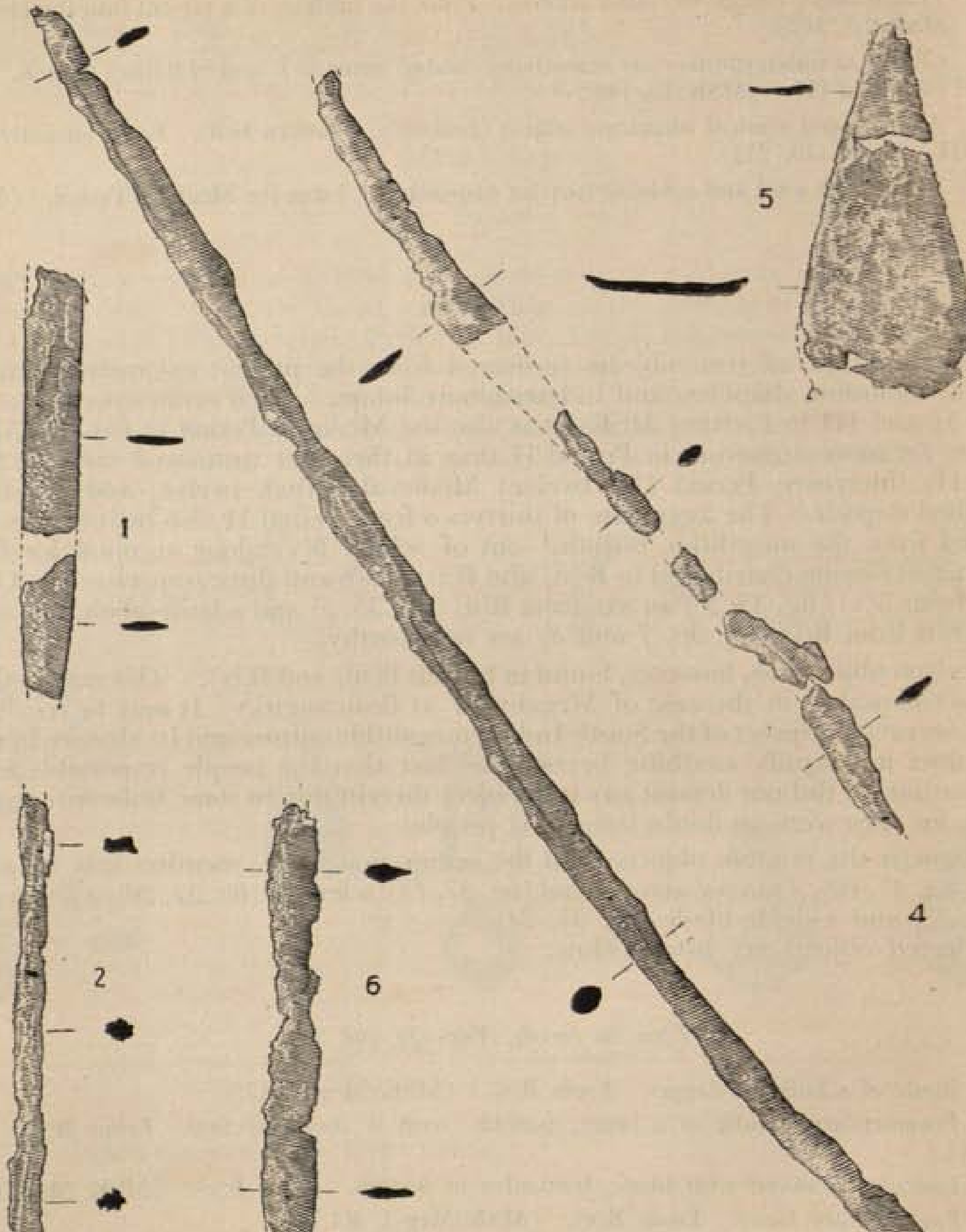


Fig. 35. *Iron objects from the burials*

7. Fragmentary blade of a knife, oblong in section. From B(i). (MSK-10, 1046.)
8. Tanged arrow-head. From B(i). (MSK-10, 1051.)
9. Fragmentary blade of a knife. From B(i). (MSK-10, 1051A.)
10. Object of uncertain use. From B(v). (MSK Meg- 2, R5.)

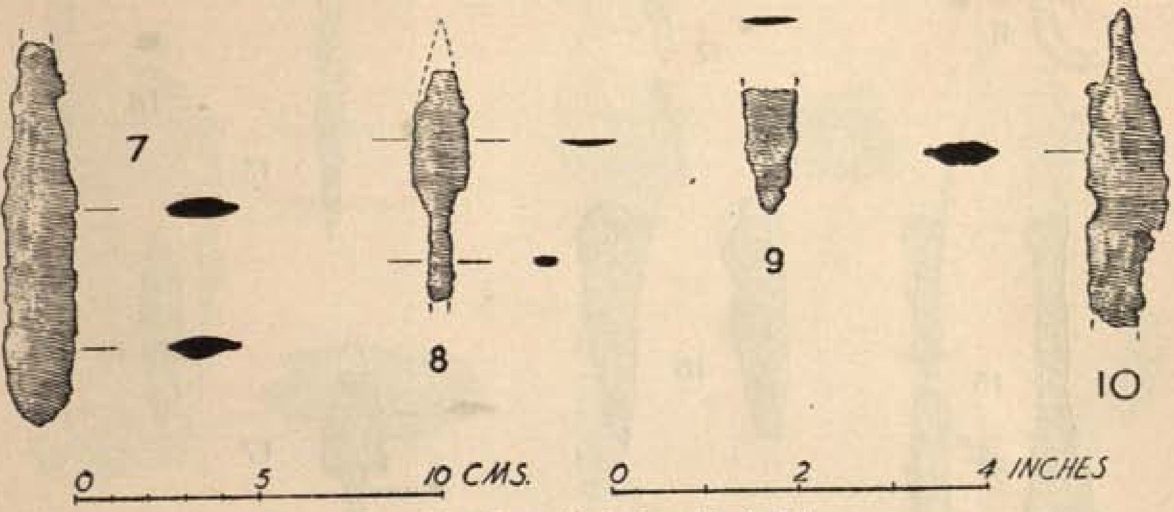


FIG. 36. *Iron objects from the burials*

From the habitational deposits (Figs. 37 and 38)

11. Nail of irregular section with lower end bent. From an unstratified deposit in a rock-shelter. (MSK CV-1, 9.)

12. Nail of squarish section. From a late level of Period III. (MSK-10, 19C.)

13. Spike of roundish section. From a mid-level of the Medieval Period. (MSK-12, 18.)

14. Nail of irregular section. From the same level as above. (MSK-12, 32.)

15. Object with long tang and flattened lower end. From a late level of Period III. (MSK-10, 1111.)

16. Chisel of squarish section. From a mid-level of Period II. (MSK-10, 575.)

17. Tanged arrow-head. From an early level of Period II. (MSK-10, 677.) Also compare a similar find from burial B(i) (fig. 36, *8*).

18. Leaf-shaped spear-head. From an unstratified deposit in a rock-shelter. (MSK CV-1, 10.)

19. Fragmentary bangle of roundish section. From a mid-level of Period II. (MSK-10, 446.)

20. Ferrule of circular section. From a late level of Period II. (MSK-10, 324.) A similar ferrule was also found at Śiśupālgarh.[1]

21. Fragmentary blade of a knife. From a mid-level of the Medieval Period. (MSK-12, 14.)

22. Fragmentary blade of a dagger. From an early level of Period II. (MSK-10, 694.)

23. Fragmentary blade of a dagger or knife. From a pit ascribable to the latest level of Period III. (MSK-9, 100.)

[1] *Ancient India*, no. 5, *op. cit.*, p. 94, fig. 10, *34*.

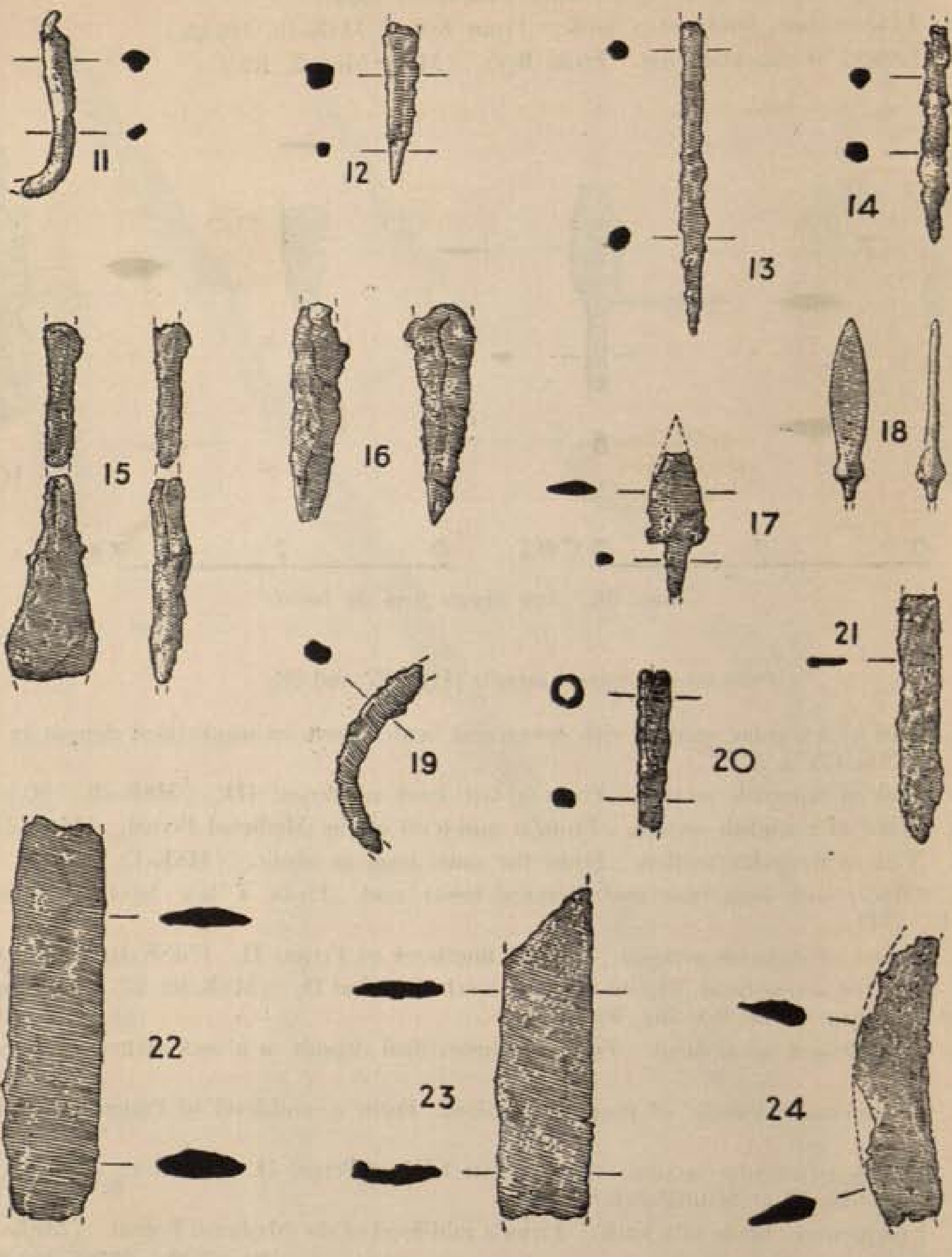


FIG. 37. *Iron objects from the habitational deposits*

24. Fragmentary blade of a sickle. From a late level of Period II. (MSK-10, 619.)

25. Axe of oblong section with the cutting edge missing. From a mid-level of Period II. (MSK-10, 1112.)

26. Nail of roundish section with a knob head. From an early level of Period II. (MSK-10, 144.)

27. Vase with a low girth. From a late level of Period III. (MSK-10, 594.)

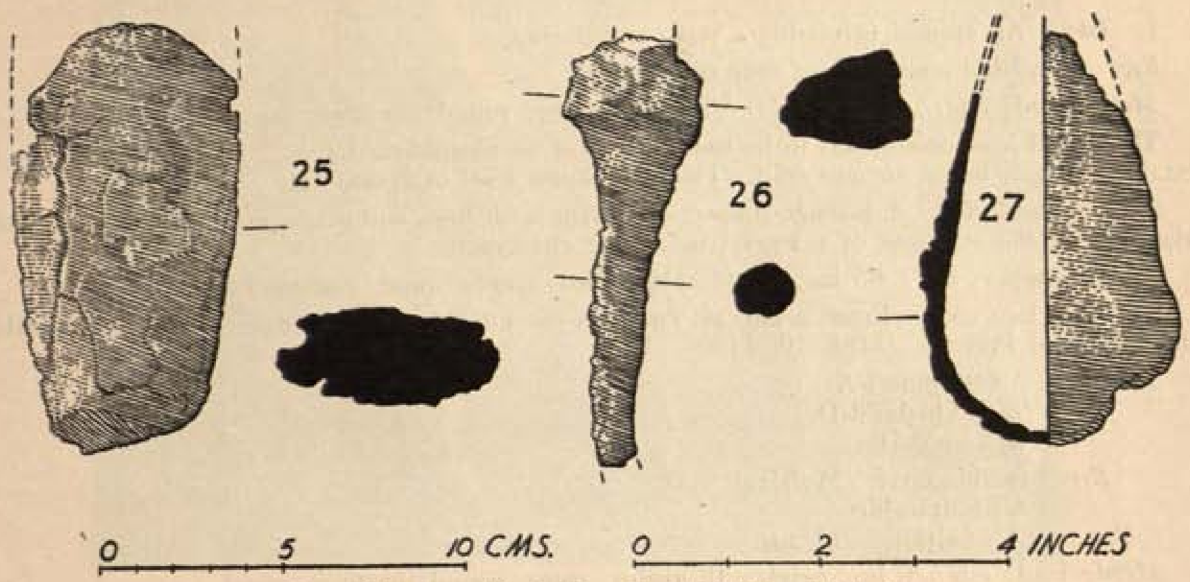


FIG. 38. *Iron objects from the habitational deposits*

(iii) *Gold*

Gold objects from the excavation number only two. They comprise one bead (described above, p. 109, pl. XXVII, *21*) and a small indeterminate fragmentary leaf, unillustrated. Both of these came from Period II.

The occurrence of gold, though very limited indeed, is not without significance. The country around Maski has already been alluded to as Suvaṇṇagiri, 'the gold mount' which was the headquarters of Aśoka's viceroy in the Deccan (above, pp. 10-11). It may be recalled that the area is famous for numerous gold workings, notably that at Hutti, the shaft of which is alleged to be one of the deepest in the world, and constitutes the principal gold-bearing belt of the Raichur Doab.[1] Presumably the localities where the gold workings are located indicate the zone where gold was systematically explored and prospected by the ancients.

H. COINS

Only four coins were obtained from the present excavation, besides three collected from the surface. Of the stratified coins, three came from Cutting MSK-10, while the remaining fourth was found from Cutting MSK-12. All of these, excepting no. 1, however,

[1] A. M. Heron, *Hyd. Geol. Series*, Bulletin no. 6 (Hyderabad, 1948), pp. 49-53.

belong to superficial deposits, ascribable to the last occupation of the site. These have been identified by Dr. D. C. Sircar, then Government Epigraphist and Shri Z. A. Desai, the Assistant Superintendent for Epigraphy, whose reports are as follows. A completely defaced unstratified coin from the present collection is not illustrated here.

pl. XXX

1. *Obv.* An animal (probably a stag) with horns.

Rev. A symbol consisting of four curly lines.

Metal: lead; *size:* ·4 in.; *weight:* 20 grains; *shape:* round; *condition:* fair.

This small lead coin seems to be unique and of an unpublished type. Its date is difficult to ascertain. It may be an ancient coin. From the latest level of Period III. (MSK-10, 4).

2. *Obv.* and *Rev.* A lozenge-shaped ornament with lines and marks around.[1] Some of the marks may be the remnant of a legend in Arabic characters.

Metal: copper; *size:* ·65 in.; *weight:* 110 grains; *shape:* round; *condition:* fair.

This is a late coin. From a late pit cut into the latest levels of Cutting MSK-10, ascribable to the Medieval Period. (MSK-10, 143.)

3. *Obv.* A's-Sulṭānu'l-A
'zam Quṯbu'd-Du
nyā wa'd-Dīn

Rev. (within circle) Mubārak S̲h̲āh
A's-Sulṭān bin
A's-Sulṭān. 717(A.H.)

Metal: lead; *size:* ·6 in.; *weight:* 48 grains; *shape:* round; *condition:* good.

The coin is of Sulṭān Quṭbu'd-Dīn Mubārak S̲h̲ah K̲h̲alji, son of 'Alāu'd-Dīn Mubārak S̲h̲āh K̲h̲ālji, who ruled during A.H. 716-720 (A.D. 1316-1320). From the same level as above. (MSK-10, 727.)

4. *Obv.* Part of what looks like a Persian legend.

Rev. Double-cross lines with marks.

Metal: copper; *size:* ·65 in.; *weight:* 96 grains; *shape:* round; *condition:* fair.

The coin seems to have been struck by a late medieval Muslim State. From surface-collection.

5. *Obv.* A's-Sulṭānu'l-G̲h̲āzī
G̲h̲iyāt̲h̲u'd-Dunyā
wa'd-Din

Rev. Abu'l-Muẓaffar Tug̲h̲luq
S̲h̲āh
A's-Sulṭān.

Metal: copper; *size:* ·6 in.; *weight:* 49 grains; *shape:* round; *condition:* fair.

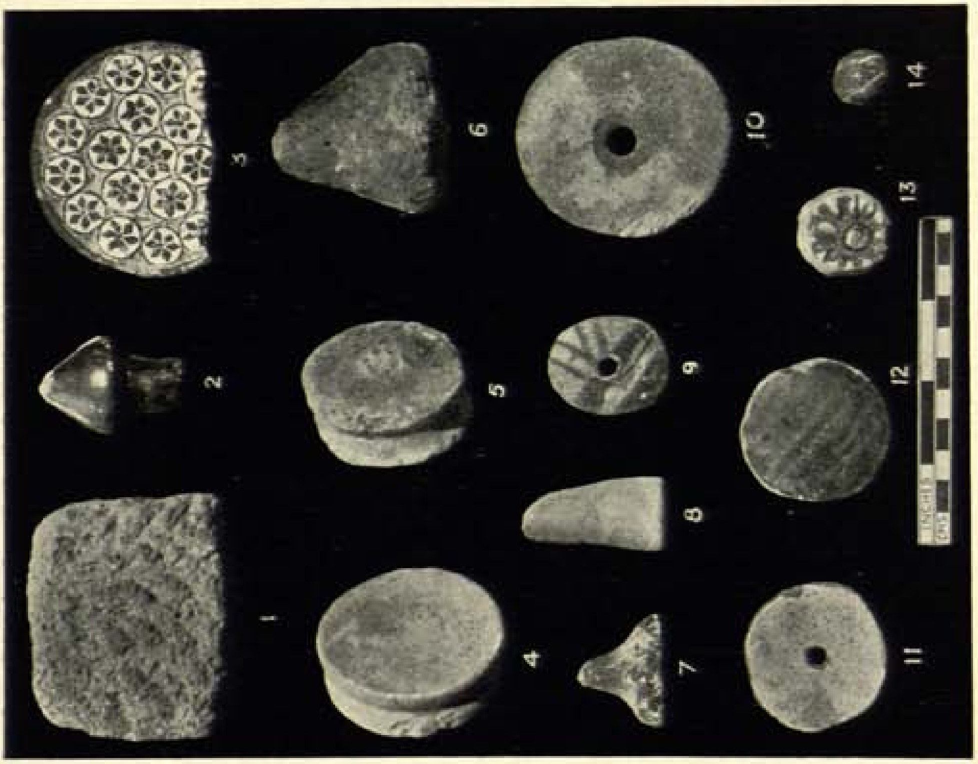
The coin is of G̲h̲iyāt̲h̲u'd-Din Tug̲h̲luq S̲h̲āh, A.H. 720-725 (A.D. 1320-1325). From surface-collection. (MSK-12, 69.)

6. *Obv.* Symbol with crescent above (cf. the usual 'three-arched *chaitya*' or 'three-peaked hill').

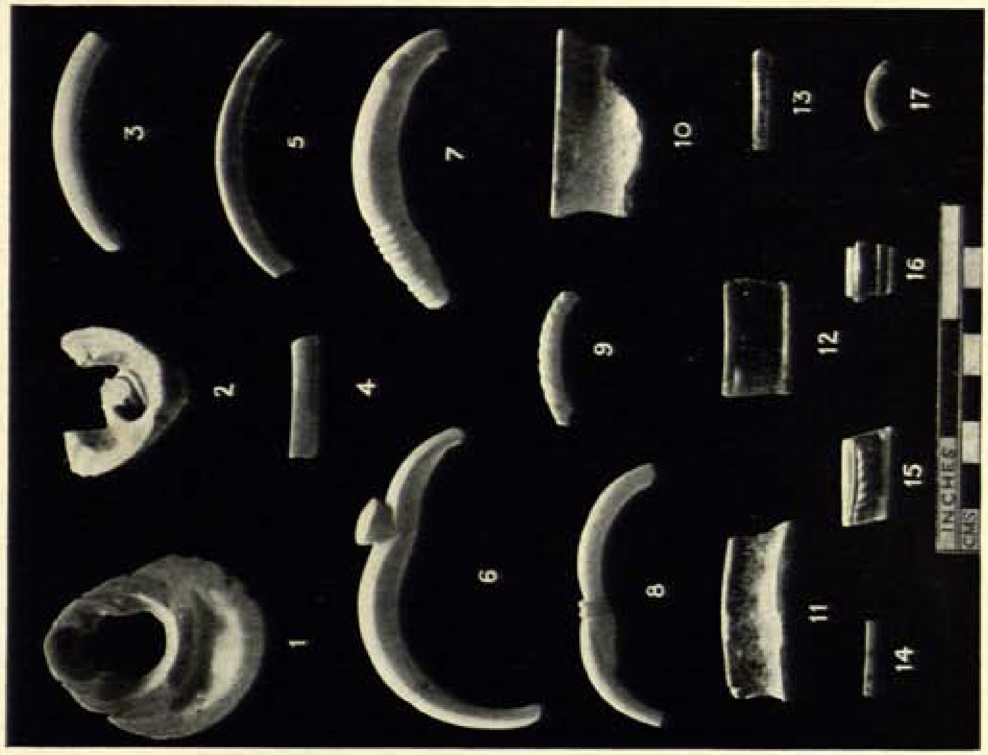
Rev. Blank.

Metal: copper; *size:* ·6 in.; *weight:* 80 grains; *shape:* round; *condition:* fair.

[1]Cf. *Indian Antiquiary,* XXXII (1903), pl. I, *7c.*



A. *Miscellaneous terracotta objects: 1, 3-5, 8 and 13, Period III; 2, 7, 10, 12 and 14, Period II; 6 and 9, Period I; 11, Medieval Period. See pages 110-11*



B. *Bangles: 1-3, 5-9, 11 and 14-17, Period III; 4, 10, 12 and 13, Period II. See pages 111-14*

To face page 121



Coins: *1, Period III; 2-3 and 6, Medieval Period; 4 and 5, surface.* *See pages 119-21*

This is a nicely-preserved single-die coin. Its fabric suggests Muslim influence and a somewhat late date, inspite of the fact that the coin is legendless and struck from a single-die. From a mid-level of the Medieval Period. (MSK-12, 26.)

10. ANIMAL-REMAINS[1]

This report deals with the collection of animal-remains from Maski made during the field-season of 1954. In most cases they are very fragmentary and fragile in nature, encrusted with hard earth. The organic material of the bones has disappeared, and they are impregnated with inorganic material as in the case of Harappa[2] Mohenjo-daro[3] and Hastināpura[4] (1955). Most of the bones including the long bones, such as humerus, radius, femur, tibia and cannon bones are fragmentary in nature and are hence unsuitable for measurements, etc.

As in the case of Mohenjo-daro, Harappa and Hastināpura collections, there is a large number of bones which belong to young animals.

Only seven species are so far represented in the Maski collection. As compared with Harappa, Mohenjo-daro and Hastināpura, this number is very small.

I am thankful to my Director, Dr. N. Datta-Majumdar, for giving me the opportunity to work on this collection. My thanks are due to Dr. B. K. Chatterjee, Anthropologist, for his keen interest and encouragement given throughout the period of this work. My thanks are also due to Shri H. K. Bose, Assistant Anthropologist, for suggestions and Shri Bimal Chandra Dutta, Assistant, Department of Anthropology, for excavation, preservation and restoration of this collection.

INVERTEBRATA

PHYLLUM-MOLLUSCA

CLASS: GASTROPODA

Order: Pectinibranchia

Family: Viviparidae

Viviparus bengalensis (Lamarack) (The Banded Pond-snail)

1. The single shell of the Banded Pond-snail (*viviparus bengalensis*), referred to above, resembles closely those of Harappa (p. 10) and Mohenjo-daro (p. 666). From the earliest level of Period I.

CLASS: PELECYPODA

Order: Eulamellibranchia

Family: Unionidae

Parreyssia sp.

1. A single broken valve. This fragment of the freshwater mussel referred to above is very much eroded, damaged and worn out, and it is difficult, therefore, to give a specific name precisely.

[1]Contributed by Shri Bhola Nath, Vertebrate Zoologist, Department of Anthropology, Government of India, Calcutta.

[2]B. Prasad, *Animal Remains from Harappa*, Mem. Arch. Surv. Ind., no. 51 (Delhi, 1936).

[3]R. B. S. Sewell and B. S. Guha in *Mohenjodaro and the Indus Valley Civilization*, II (London, 1931).

[4]B. Nath in *Ancient India*, nos. 10 and 11, *op. cit.*, pp. 107-120.

Its photograph is reproduced along with one from Harappa (recovered out of a jar, no. 3689) for comparison (pl. XXXI, *1* and *2*). From the earliest level of Period I.

Prasad[1] as well Sewell and Guha[2] recorded the remains of the freshwater mussel (P. favidens) from Harappa and Mohenjo-daro respectively.

VERTEBRATA

CLASS: MAMMALIA

Order: Perissodactyla

Family: Equidae

Equus asinus Linnaeus (The Domestic Ass)

1. Distal epiphyseal end of the third metatarsal. The only bone available of the domestic ass (*E. asinus*) from Maski, it indicates without doubt the presence of this animal at Maski. From a superficial deposit associated with the menhirs. Its measurements are given below for comparison with those from Harappa (B 954) and those of a recent specimen in the Department of Anthropology (pl. XXXI, *3-5*).

Distal epiphyseal end of the third metatarsal	Greatest breadth of the distal articular surface	Greatest depth of the distal articular surface
Maski	29	...
Harappa (B 954)	28	20
Modern young specimen (in the Dept. of Anthropology)	24	19

The shape, size and configuration of the Maski specimen closely resemble those from Harappa and of the modern Indian domestic ass, and there cannot be any doubt in referring it to *Equus asinus*.

Prasad[3] recorded the remains of the domestic ass from Harappa, while there is no record of it from Mohenjo-daro (1931).

Order: Rodentia Simplicidentata

Family: Muridae

Sub-Family: Murinae

Rattus rattus Linn. (The common Indian Rat)

1. Fragment of right pelvis with illium, acetabulum and a portion of ischium and pubis; shaft of the tibia without proximal and distal extremities; fragment of first phalanx of fore-foot. From the earliest level of Period I. The bones of the common rat, referred to above, agree with those of the existing common Indian Rat as well as with those from Harappa (7849a). The photographs of such well-preserved specimens, as fragments of the right pelvis and the tibia, are reproduced along with those from Harappa for comparison (pl. XXXI, *6-9*).

Remains of the common Indian Rat were recorded at Harappa[4] and Mohenjo-daro.[5]

[1] Prasad, *op. cit.*, p. 11.
[2] Sewell and Guha, *op. cit.*, p. 664.
[3] Prasad, *op. cit.*, p. 28.
[4] *Ibid.*, p. 27.
[5] Sewell and Guha, *op. cit.*, p. 653.

Order: Artiodactyla

Family: Bovidae

Sub-Family: Bovinae

Bos indicus Linnaeus (The Zebu or domestic humped cattle of India)

1. Proximal fragment of the shaft of third and fourth metacarpal. From an early level of Period I.

2. Proximal fragment of the shaft of left tibia. From an early level of Period I. (MSK-10, 819.)

3. Fragment of the shaft of femur. From the earliest level of Period I.

4. Proximal fragment of the left third and fourth metatarsal. From the same level as above.

5. Fragment of a rib. From the same level as above.

6. Distal extremity of the third and fourth metatarsal. From the same level as above.

7. Fragment of the horizontal ramus of the left mandible. From the same level as above.

8. Fragment of the anterior articular process of axis vertebra. From the same level as above.

9. Proximal fragment of the left third and fourth metacarpal of a young one. From the same level as above.

10. Fragments of upper jaw without teeth. From the same level as above.

11. First lower right molar of a young one. From the same level as above.

12. Two fragments of the shaft of thoracic ribs. From a pit ascribable to the earliest level of Period I.

13. Fragment of a lumbar vertebra with neural arch, broken spinous process and posterior articular process. From the same level as above.

14. Fragment of the frontal bone of skull; second right lower premolar. From the same level as above.

15. Three fragments of the horizontal ramus of lower jaws. From the same level as above.

16. Two fragments of the shaft of third and fourth metatarsal. From the same level as above.

17. Fragments of ribs of young individuals. From the same level as above.

18. Fragment of the shaft of humerus. From the same level as above.

19. Fragment of the proximal shaft of right tibia with nutrient foramen. From the same level as above.

20. Fragments of ribs; anterior articular process with a portion of arch of the cervical vertebra. From the same level as above.

21. Fragmentary piece of the upper jaw without teeth. From the same level as above.

22. Fragment of the distal extremity of right humerus with lateral condyle and olecranon fossa. From a mid-level of Period I. (MSK-10, 937.)

23. Distal fragment of the third and fourth metatarsal with condyles of a young individual; proximal fragment of the third and fourth metacarpal. From the same level as no. 1 above. (MSK-10, 787.)

24. Proximal fragment of the left tibia. From the same level as no. 12 above.

25. Fragment of the shaft of third and fourth metatarsal. From the same level as above.

26. Fragments of ribs. From the same level as above.

27. Two fragments of the coronoid process of the lower jaws. From the same level as above.

28. Fragmentary piece of the vertical ramus of the mandible. From the same level as above.

29. Three fragments of the shaft of humerus. From the same level as above.

30. Candal vertebra. From the same level as above.

31. Proximal fragment of the third and fourth metacarpal. From the same level as above.

32. Epiphysis of a vertebra of a young individual. From the same level as above.

33. Scaphoid and lunate bone, much eroded and fused with a fragmentary piece of radius. From the same level as above.

34. Shaft of tibia without proximal and distal extremity of a young individual. From the infilling of a pit cut into the strata of Period I.

35. Shaft of the metatarsal without distal extremity of a young one. From the same level as above.

36. Fragment of the shaft of metacarpal. From the same level as above.

37. Shaft of the left femur without proximal and distal extremity of a young individual. From the same level as above.

38. Proximal fragment of the left tibia. From the same level as above.

39. Fragment of a thoracic vertebra with a portion of neural arch and broken spinous process and anterior articular process with a part of transverse process of one side only. From the same level as above.

40. Lumbar vertebra with broken transverse process. From the same level as above.

41. Proximal fragment of the spinous process with proximal articular facet. From the same level as above.

42. Distal fragment of the tibia. From the same level as above.

43. Fragment of the sacral vertebra with sacral foramina. From the same level as above.

44. Epiphysis of the thoracic vertebra of a young one. From the same level as above.

45. Proximal fragment of right tibia. From the same level as above.

46. Left lower first premolar of a young individual. From an early level of Period I.

47. Right lower third premolar. From the same level as above.

48. Fragment of the shaft of rib. From the same level as above.

49. Candal vertebra of a young individual. From the same level as above.

50. Fragment of the greater tuberosity of left humerus. From the same level as no. 34 above.

51. Distal epiphysis of the third and fourth metatarsal. From the same level as above.

52. Body of a cervical vertebra. From the same level as above.

53. Body of a thoracic vertebra. From the same level as above.

54. Fragment of the cervical vertebra with transverse process and foramen transversarium. From the same level as above.

55. Fragment of the blade of scapula. From the same level as above.

56. Fragments of ribs. From the same level as above.

57. Fragment of the shaft of metatarsal. From the same level as above.

58. Fragments of the shaft of humerus. From the same level as above.

59. Fragment of the proximal tibia. From the same level as above.

60. Distal fragment of the third and fourth metatarsal of a young one. From the same level as above.

61. Fragments of scapula. From the same level as above.

62. Distal fragment of third phalanx. From the same level as above.

63. Fragment of the shaft of radius. From the same level as above.

64. Fragment of the thoracic spinous process. From the same level as above.

65. Incisive tooth. From the same level as above.

66. Fragment of the left ramus of mandible with third premolar and first molar. From a deposit ascribable to Period II.

67. Two fragments of the shaft of thoracic ribs. From the same level as above.

68. Fragment of the vertical ramus of the left mandible with condyle. From the same level as above.

69. Fragments of mandible. From the same level as above.

70. Two fragments of the shaft of tibia. From the same level as above.

71. Proximal fragment of the shaft of femur of a young individual. From the same level as above.

72. Fragment of the left pelvis with a portion of illium and acetabulum. From the same level as above.

73. Fragment of a scapula with glenoid cavity. From the same level as above.

74. Proximal fragment of a thoracic rib. From the same level as above.

75. Fragment of the frontal bone of the skull. From the same level as above.

76. Fragment of the body of a thoracic vertebra of a young one. From the same level as above.

77. Proximal fragment of the metacarpal of a young one. From the same level as above.

78. Lumbar vertebra of a young one. From the same level as above.

79. Fragment of the right ramus of mandible with first and second premolar teeth of a young one. From the same level as above.

80. Spine of a thoracic vertebra, tip broken. From the same level as above.

81. Third upper left premolar, slightly broken. From the same level as above.

82. Fragment of the left horn-core. From a stratum ascribable to Period II.

83. Right third and fourth metatarsal without the distal extremity of a young individual. From the same level as above.

84. Fragmentary piece of the shaft of third and fourth metatarsal. From the same level as above.

85. Fragment of a molar tooth. From the same level as above.

The remains of the humped cattle listed above, including the long bones, such as humerus, radius, femur, tibia and cannon bones, are very fragmentary in nature and are of no use for exact measurements. The few teeth available do not show any special peculiarities and resemble closely those from Harappa, Mohenjo-daro and Hastināpura as also the recent specimen of *Bos indicus* in the Department of Anthropology.

The lower jaw is incomplete but resembles in all respects that of a recent specimen in the Department of Anthropology (pl. XXXI, *10*).

The available horn-cores are all incomplete (pl. XXXI, *11*).

Prasad distinguishes two distinct types of humped cattle from Harappa: (i) a large massive form probably of the type of long-horned humped cattle and (ii) a small form with short horns which probably represents the humpless variety. The remains from Maski, which have been carefully examined, closely resemble the smaller, humpless, short-horned variety of Harappa[1] Mohenjo-daro and Hastināpura.[2]

[1] Prasad, *op. cit.*, p. 37.

[2] B. Nath, *op. cit.*, pp. 110-114.

From the very close structural resemblance between the skeletal remains excavated at Maski and those of the modren domestic humped cattle of India, present in the collection of the Department of Anthropology, it is evidently clear that the Maski remains are those of the domesticated cattle now found ın India.

Bos (*Bubalus*) *bubalis* Linnaeus (The Indian Domestic Buffalo)

1. Distal fragment of the left radius of a sub-adult individual. From a pit ascribable to the late levels of Period III.
2. Right astragalus of a sub-adult one. From the same level as above.
3. Fragment of the shaft of left radius and ulna. From the same level as above.
4. Fragment of the shaft of left tibia. From the same level as above.
5. Proximal fragment of the right metatarsal. From the same level as above.
6. Left calcaneum without cuboid facet. From the same level as above.
7. Thoracic vertebra with broken spine and much eroded body. From the same level as above.
8. Cervical vertebra with a portion of body, anterior and posterior articular processes with foramen transversarium. From the same level as above.
9. Fragment of the spinous process of thoracic vertebra. From the same level as above.
10. Fragments of ribs. From the same level as above.
11. Distal fragment of the right humerus with a portion of medial condyle. From an early level of Period I.

None of the above bones of this animal is complete and no measurements can therefore be taken for comparison. However, below are given the measurements of the distal epiphyseal end of the left radius of a sub-adult individual along with those of a recent specimen for comparison. (Pl. XXXI, *12* and *13*).

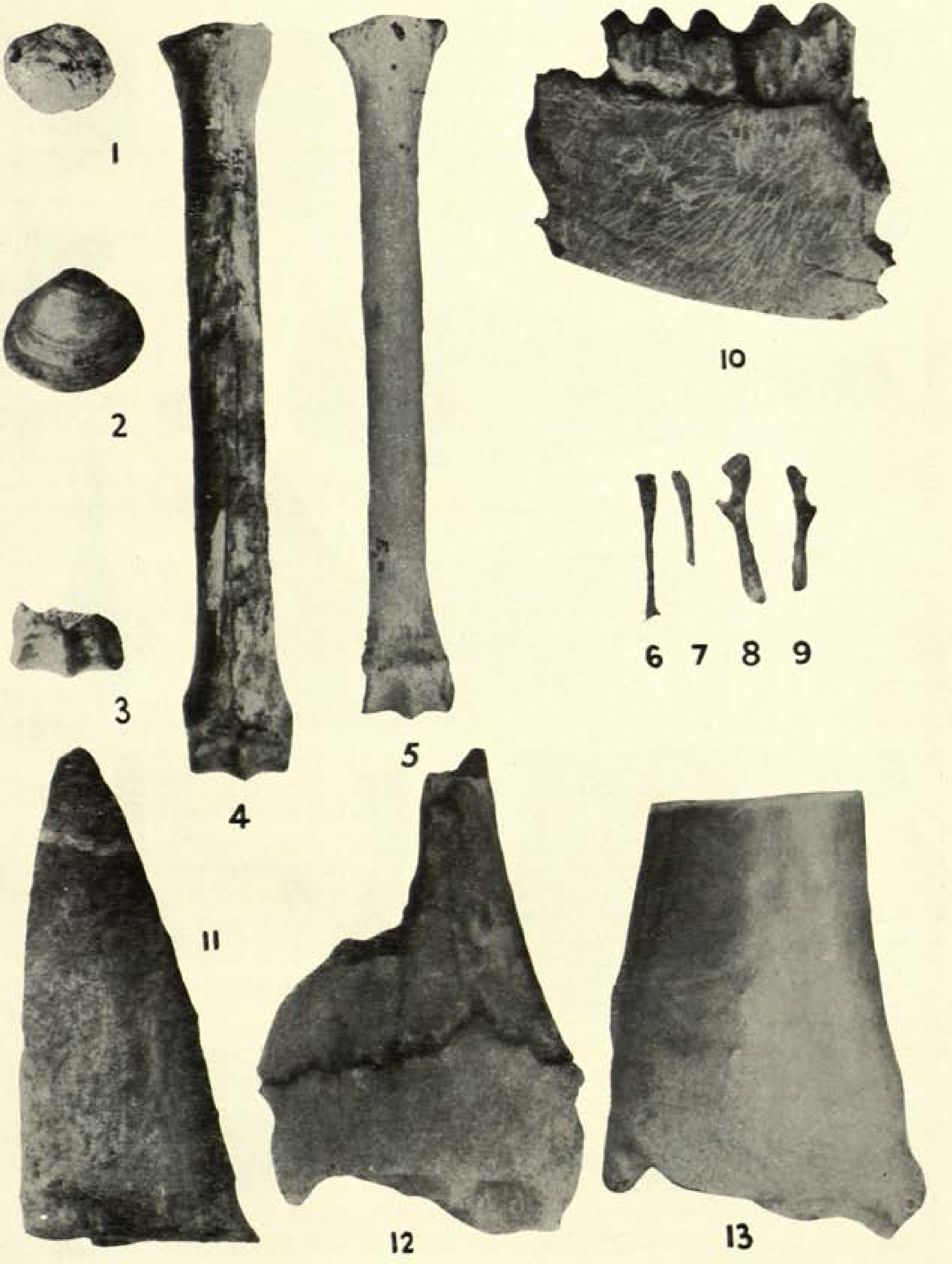
Distal epiphyseal end of left radius	Distal epiphyseal breadth	Breadth of the distal carpal articulr surface
Maski	74	70
Modern specimen (in the Dept. of Anthropology)	72	73

The only other bone that is almost intact is the right astragalus of a sub-adult individual. Its photograph, along with that of a modern specimen, is also reproduced (pl. XXXI, *14* and *15*).

The find of a limited number of the fragments of bones of *Bos* (*Bubalus*) *bubalis* indicates that the inhabitants probably did not maintain large herds of *Bos* (*Bubalus*) *bubalis* (the Indian Buffalo) as compared with *Bos indicus*.

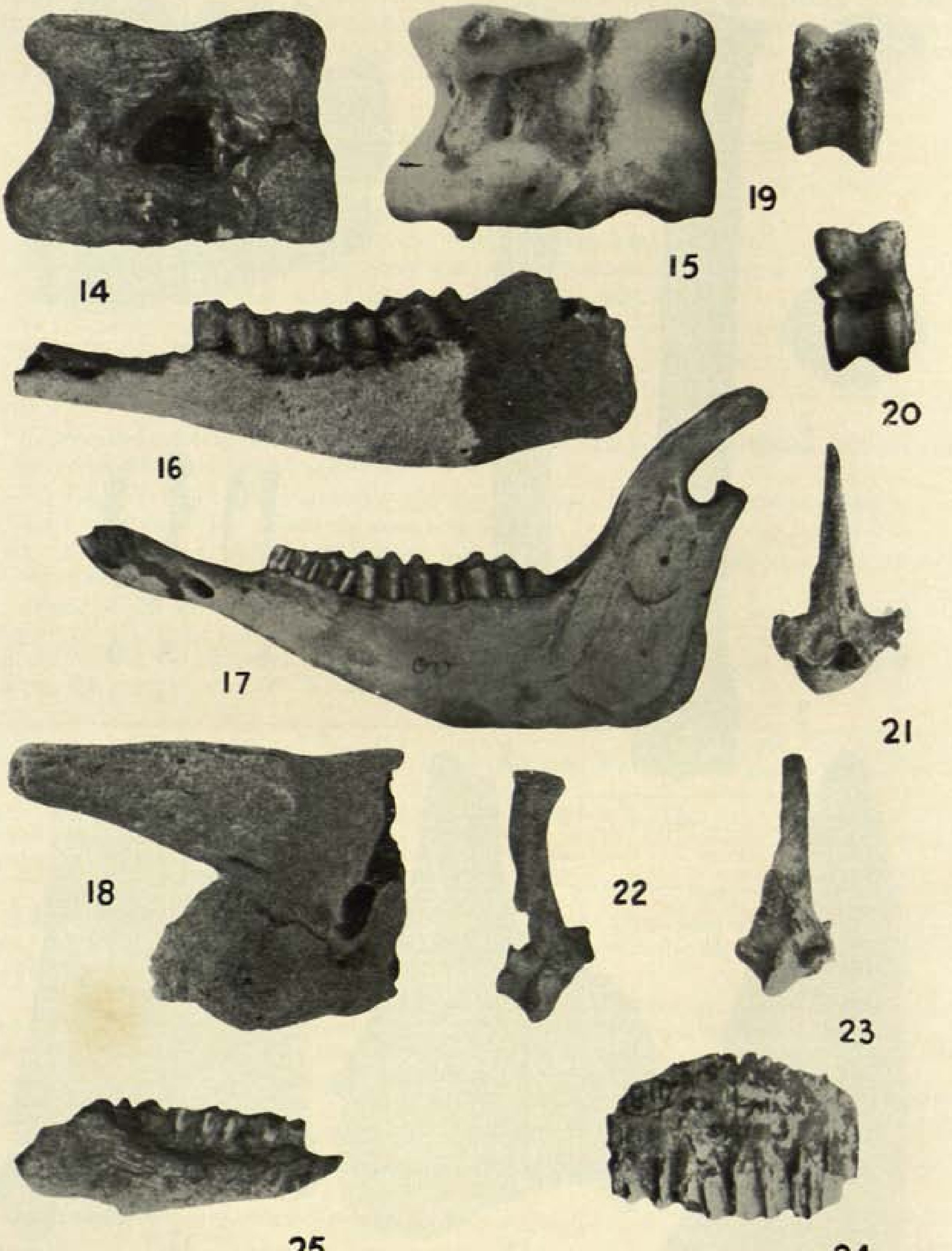
These remains of the buffaloes show very close structural resemblance with those of the modern domestic buffalo. Thus, the Maski remains are closely akin to the modern Indian domesticated race of buffalo. They are also similar to those of Mohenjo-daro,[1] Harappa[2] and Hastināpura.[3]

[1] Sewell and Guha, *op. cit.*, p. 654.
[2] Prasad, *op. cit.*, p. 49.
[3] B. Nath, *op. cit.*, p. 115.



Animal-remains: 1, 3, 7, 8 and 10-12 from Maski; 2, 4, 6 and 9 from Harappa; 5 and 13, modern specimens. (Scale: 1, 7 and 11, $\frac{3}{4}$; 2, 6 and 8-10, $\frac{4}{5}$; 3, 12 and 13, $\frac{2}{3}$; and 4 and 5, $\frac{3}{5}$). *See pages 121-26*

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Animal-remains: *14, 16, 18-19 and 21-25 from Maski; 15, 17 and 20, modern specimens.* (*Scale*: *14, 15 and 17*, $\frac{2}{3}$; *16 and 21-24*, $\frac{4}{5}$; *18 and 25*, $\frac{3}{4}$; *19-20*, $\frac{9}{10}$). *See pages 126-29*

Sub-family: Caprinae

Ovis vignei Blyth, race *domesticus* (The domestic sheep)

1. Fragments of the blade of scapula. From an early level of Period I.

2. Fragment of the distal extremity of femur. From the same level as above.

3. Fragments of the shaft of third and fourth metacarpal. From the earliest level of Period I.

4. Fragment of the upper jaw with third premolar, first and second molars. From a pit ascribable to the earliest level of Period I.

5. First phalanx of the fore-foot of a young individual. From the same level as above.

6. Fragment of a horn-core. From the same level as above.

7. Fragment of rib. From the same level as above.

8. Two fragments of the shaft of third and fourth metatarsal. From the same level as above.

9. Proximal and distal fragments of first phalanx of fore-foot. From the same level as above.

10. Fragment of the fused navicular and cuboid of right tarsus. From the same level as above.

11. A thoracic vertebra wihout spine of a young one. From the infilling of a pit cut into the strata of Period I.

12. Fragments of ribs of young ones. From the same level as above.

13. Fragment of the vertical ramus of left lower jaw with coronoid process and condyle, greatly eroded, of a young individual. From the same level as above.

14. Proximal fragment of first phalanx of a young individual. From the same level as above.

15. Fragments of the cervical vertebrae with anterior and posterior articular processes. From the same level as above.

16. Second phalanx of fore-foot. From the same level as above.

17. Fragment of a scapula. From the same level as above.

18. Proximal fragment of ulna with semi-lunar notch and without olecranon process. From the same level as above.

19. Fragment of the shaft of femur. From the same level as above.

20. Fragment of the molar tooth of lower jaw. From the same level as above.

21. Left upper first premolar tooth. From the same level as above.

22. Right astragalus. From the same level as above.

23. Proximal fragment of the left metacarpal. From the same level as above.

24. Proximal epiphysis of left tibia. From the same level as above.

25. Occipital bone of the skull with foramen condyle. From the same level as above.

26. Paramastoid process and a portion of basi-occipital and condylar foramen. From the same level as above.

27. Third phalanx of fore-foot. From the same level as above.

28. Fragments of ribs. From the same level as above.

29. Distal fragment of the radius. From the same level as above.

30. Left astragalus. From the same level as above.

31. Right calcaneum with broken tuber calcis. From the same level as above.

32. Fragments of the thoracic ribs. From the same level as above.

33. Fragment of the frontal bone with bony horn-core. From the same level as above.

34. Fragment of the right ramus of mandible with fourth premolar and first molar. From the same level as above.

35. Fragment of the proximal shaft of right ulna with semi-lunar notch and a portion of olecranon process, first phalanx of fore-foot. From an early level of Period I.

36. Fragment of the shaft of thoracic rib. From the same level as above.

37. Left first thoracic rib, slightly broken at the distal end. From the same level as above.

38. Fragment of the right upper jaw with first, second and third premolars and first molar. From a pit ascribable to the late levels of Period III.

39. Left humerus without proximal and distal extremity of a young one. From the same level as above.

40. Fragment of the horizontal ramus of lower jaw. From the same level as above.

41. Left ramus of lower jaw with second, third and fourth premolars and first and second molar teeth and without body (*Corpus mandibulae*), condyle and coronoid process. From a superficial deposit associated with the menhir, probably Period II.

42. Fragment of the left illium of the left pelvis. From the same level as above.

43. Fragment of the shaft of tibia. From the same level as above.

44. Three complete thoracic vertebrae. From the same level as above.

45. Right shaft of the third and fourth metatarsal. From the same level as above.

46. Fragments of the shaft of femur. From the same level as above.

47. Fragment of the shaft of radius. From the same level as above.

48. The following bones of this species were obtained from pit 28—megalithic burial of class B(i)—along with human remains (above p. 30; pls. VII and VIIIB): a thoracic vertebra with phalanx of anterior articular process; fragment of the head of femur; fragments of ribs; one second body and fore-foot and one second phalanx of hind foot; right radius without distal portion; fragment of the shaft of left radius; fragment of the shaft of metatarsal without proximal and distal extremities; proximal fragment of the right humerus without head, the greater tuberosity much eroded; distal fragment of the right humerus with medial and lateral condyle, much eroded; fragment of the head of humerus; distal epiphysis of the right femur; proximal fragment of the scapula with glenoid cavity; two lumbar vertebrae, fused together without transverse processes, of the young individual; thoracic vertebra with eroded body and without spinous process; fragment of a cervical vertebra with a portion of body and with the anterior and posterior articular processes having foramen transversarium; fragment of the lower jaw with condyle and coronoid process; fragment of the greater tuberosity of humerus; fragment of the mandible with unerrupted teeth of a young individual; fragment of the illium of pelvis; distal fragment of the right radius without distal extremity of a young individual; fragment of the shaft of femur; fragment of the left ramus of lower jaw with second and third premolars and first molar; fragment of the upper jaw with third premolar and first and second molars; fragment of the left upper jaw with second and third premolars and first and second molars; and first left molar.

49. The following bones of this species were obtained from Pit 2—megalithic burial of class B(ii)—along with human remains (above p. 32; fig. 6; pl. XI): left third and fourth metatarsal without distal extremity of a young one; right shaft of humerus without proximal and distal ends; distal fragment of the shaft of right radius without distal extremity; proximal fragment of the shaft of right femur without proximal extremity of a young one; shaft of the left tibia; fragment of the shaft of metatarsal; several fragments of ribs; fused second and third tarsal; a broken vertebra with eroded body and spinous process; one right and one left first phalanx of hind foot.

The remains of the domestic sheep, as listed above are very fragmentary. Not a single complete bone or skull is available. It is difficult, therefore, to be certain about the sizes of this species or to take particular measurements for comparison.

The few available teeth do not show any specialized peculiarities and generally resemble those of the recent domestic sheep.

The lower jaw is incomplete but resembles in all respects that of a recent specimen in the Department of Anthropology, both of which are illustrated together (pl. XXXII, *16* and *17*).

The available horn-cores are all incomplete. A well-preserved specimen, with a portion of frontal bone of the skull, is illustrated (pl. XXXII, *18*).

The limb-bones are very fragmentary. Some of the better preserved specimens are illustrated (pl. XXXII, *19-23*) along with those of the modern specimens.

Fragments of the bones from Maski closely resemble those of the remains of sheep from Harappa[1] and Hastināpura.[2]

Capra hircus aegagrus Gmelin (the Indian Domestic Goat)

1. Fragment of the horizontal ramus of the right mandible with first, second and third premolars and first molar of a young one. From an early level of Period I.

2. Fragment of the horizontal ramus of right mandible with third premolar and first molar of a young one. From the same level as above.

3. Fragment of the horizontal ramus with first and second premolars of a young individual. From the same level as above.

4. Fragment of the horizontal ramus of left mandible with second and third premolars of an adult one. From the same level as above.

5. Fragment of the left upper jaw with first and second premolars and first, second and third molars. From the earliest level of Period I.

6. Distal fragment of the shaft of third and fourth metatarsal of a young one. From the same level as above.

As compared with the skeletal remains of domestic sheep (*ovis vignei*) the skeletal remains of goat from Maski are very small in number.

The teeth available do not show any specialized peculiarities and generally resemble those of the recent domestic goat. Fragments of upper and lower jaws are illustrated here (pl. XXXII, *24* and *25*).

Unfortunately, no long bone or skull is available. It is difficult, therefore, to be certain about the sizes for comparison with those of other forms.

Fragments of bones from Maski closely resemble those of the remains from Harappa[3] and Hastināpura.[4]

II. POLLEN-ANALYSIS[5]

A. Introductory

The material comprising six soil samples belonging to Period I and Period II, collected from Cutting MSK-10 at Maski, and sent to the Institute by Shri B. K. Thapar,

[1] Prasad, *op. cit.*, p. 49.
[2] B. Nath, *op. cit.*, p. 116.
[3] Prasad, *op. cit.*, p. 47.
[4] B. Nath, *op. cit.*, p. 117.
[5] Contributed by Shri Vishnu Mittre of the Birbal Sahni Institute of Palaeobotany, Lucknow.

Superintendent, Department of Archaeology, was given to me for investigation by the Officer-in-Charge and the Head of the Department of Tertiary Palaeobotany and Palynology.

About 45 gm. of each sample was powdered, shaken with alcohol and decanted. The liquid was then centrifuged and the residue treated with dilute nitric acid (40 per cent). After washing with distilled water the sediment was suspended in hydrofluoric acid (40 per cent) for four to five days. The mixture was then diluted with distilled water and washed with dilute hydrochloric acid (50 per cent) and distilled water till it was free of acid. Sample no. 1 was also acetolysed after this treatment, and sample no. 2 was boiled with 10 per cent KOH. The slides were prepared in dilute glycerine jelly as well as in Canada balsam.

Each sample was tried once only. All possible precautions were taken to avoid contamination. Three check-slides were also kept in the laboratory to check any contamination from the atmosphere.

B. Observations

Identification of the pollen-grains wherever possible is given along with the description of the grains.

1. Soil-samples from the upper deposits of the natural soil did not yield any pollen-grains.

2. Soil-samples from the upper deposits of Period I (*circa* sixth-fifth century B.C.) yielded the following two types of pollen-grains.[1]

(a) *Type 1.* Pollen spheroidal, 51·2 μ nonaperturate, exine ornamented with coarse reticulation. Five grains noted. Fig. 39, *1.*

(b) *Type 2.* Pollen spheroidal, 38·4 μ monoaperturate, probably monosulcate, exine as in Type 1. One grain observed. Fig. 39, *2.*

Besides, several smooth-walled fungal spores are also present.

3. Soil-samples from the middle deposits of Period I (*circa* eighth-seventh century B.C.) did not yield any pollen-grains.

4. Soil-samples from the earliest pit cut into the natural soil ascribable to Period I (*circa* tenth-ninth century B.C.) contain some identerminable smooth-walled grains devoid of any germinal apertures, probably of fungal origin.

5. Soil-samples from the limy deposits of Period II (*circa* second century B.C.) contain the following types of pollen-grains and tracheids.

1. POLLEN-GRAINS

A. Winged pollen-grains

(a) *Type 1.* Pollen-grain 72μ including wings; body oval, $48 \times 38{\cdot}4\mu$; wings two, bladdery, reticulate, marginal crest absent. Single grain observed. Resembles in essential characters the grains of the genus *Pinus*. Fig. 39, *3.*

[1] Here and subsequently 'pollen-grains' mean pollen-grains or spores or both, according to the context.

B. Unwinged pollen-grains

(i) *Colpate grains*

(a) *Type 1.* Pollen tricolpate, brevicolpate, spheroidal, 32 μ; exine baculate. Fig. 39, *4*.

(b) *Type 2.* Pollen tri-tetracolpate, 25-29 μ, spheroidal, coarsely reticulate, colpi short. Three grains observed. Probably a cruciferous type, cf. pollen of *Brassica*. Fig. 39, *5*.

(ii) *Non-spinous Forate pollen-grains*

(a) *Type 1.* Pollen spheroidal, about 25 μ; pores small, several; exine granular. Probably Amaranth-chenopod type. Single grain observed. Fig. 39, *6*.

(b) *Type 2.* Pollen spheroidal, about 32 μ; pores large, few; exine granular. Probably belonging to Caryophyllaceae (cf. *Stellaria*). Two grains observed. Fig. 39, *7*.

The pollen-grain in fig. 39, *8*, about 48 μ in size, is also probably caryophyllaceous (cf. *Lychnis*) in nature.

(c) *Type 3.* Single broken grain, 52·8 × 36·8 μ, aspidate, granular; pores 4·8 × 3·2μ. Single specimen present. Probably belonging to *Juglandaceae*. Fig. 39, *9*.

(d) *Type 4.* Pollen small, 26 μ; exine tegillate. Probably of *Plantago*. Single grain observed. Fig. 39, *10*.

(iii) *Spinous Forate pollen-grains*

(a) *Type 1.* Pollen-grains ovoid, 54·4 × 44·8 μ, spinuliferous, granular; pore 4-4·8 μ, simple; spinules 0·8-1·6 μ. Four specimens observed. Fig. 39, *11*.

(b) *Type 2.* Probably spheroidal but folded, 51·2 ×36·8 μ; exine thin smooth; spinules sessile, tuberculate about 1·8 μ; pores round about 3·2 μ in diam. Two specimens noted. Pollen resembles that of the genus *Campanula*. Fig. 40, *12*.

(c) *Type 3.* Ovoid, 80 × 60·8 μ, granular; pores 4·8-6·4 μ; spines large with conspicuous rods at the base of some. Probably of malvaceous origin. Two grains observed. Fig. 40, *13*.

2. TRACHEIDS

Coniferous tracheids (fig. 40, *14* and *15*)

Several tracheids possessing bordered pits arranged loosely in uniseriate rows (fig. 40, *14*) or biseriate opposite pits alternating with single pits (fig. 40, *15*) were noted. Probably belonging to *Pinus*.

Besides, ornamented and smooth-walled fungal spores are also present.

6. Soil-samples from the upper deposits of Period II overlapping with the lower strata of Period III (*circa* first century A.D.) contain fungal spores and tracheids as in the above samples. The following pollen types are noted.

(a) *Type 1.* Large smooth-walled spherical grain, 39·6 × 33 μ, probably broken at the top and appearing like a monosulcate grain. Fig. 40, *16*.

(b) *Type 2.* Pollen-grain tricolporate, brevicolpate, spinous; spines 32 μ. Six specimens noted. Probably belonging to the Compositae. Fig. 40, *17*.

C. Conclusions

1. All the samples except sample no. 5, are virtually devoid of pollen-grains.
2. The pollen-grains wherever present are few in number.

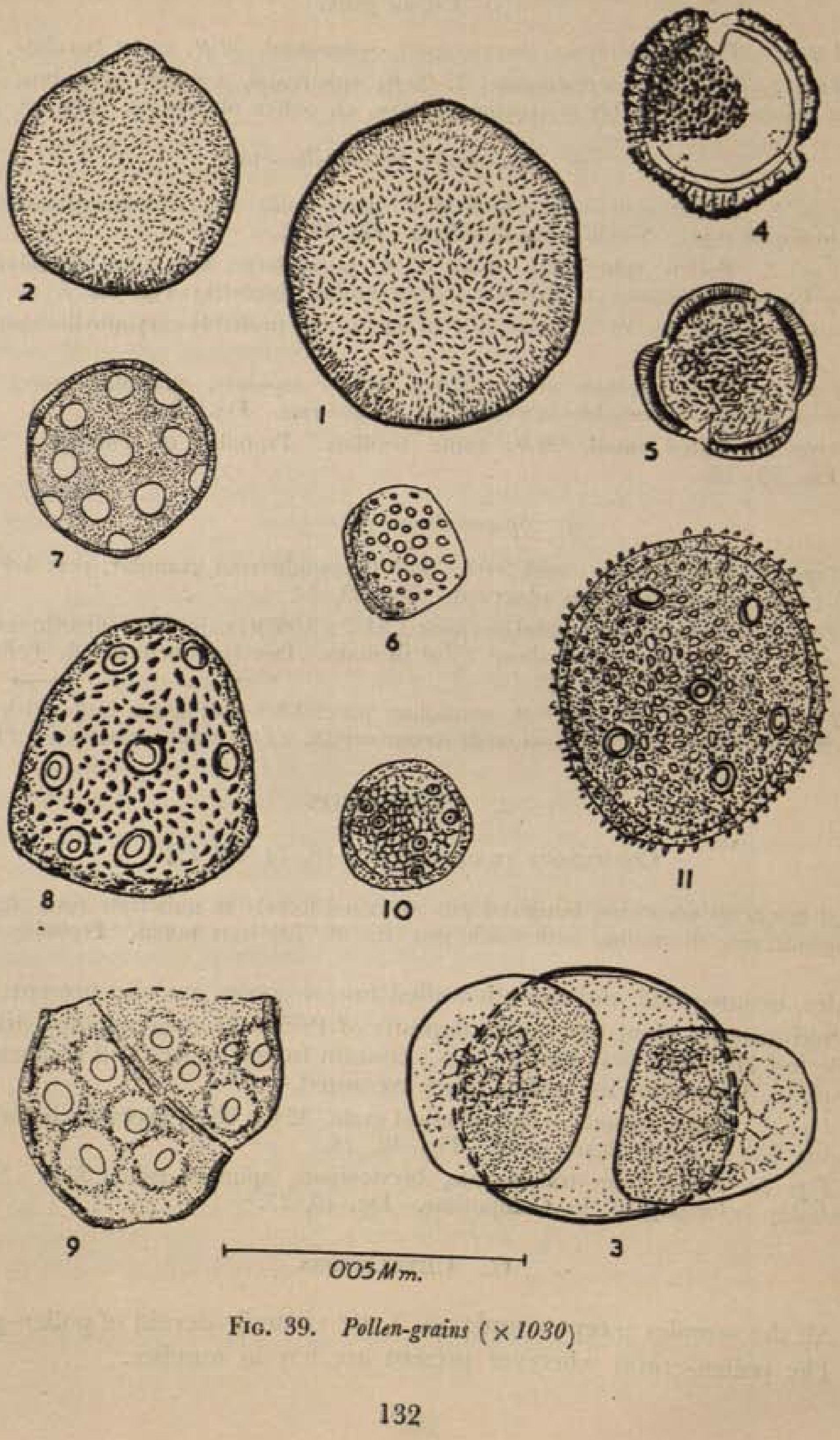


FIG. 39. *Pollen-grains* (× *1030*)

3. In sample no. 5 are noted pollen-grains resembling those of *Pinus*, *Brassica*, *Campanula*, *Stellaria*, *Lychnis* and *Juglandaceae*. The occurrence of pines in the vicinity of Maski at times about second century B.C. is further confirmed by the tracheids of the Pines.

The close association of *Pinus* and *Juglandaceae*, coupled with that of *Stellaria*, *Lychnis* and *Campanula*, is indicative of a temperate climate.

4. In view of a very small number of the pollen-grains in one or two samples and their absence in the other samples, it is not possible to throw light on the age of the samples.

D. Illustrated specimens

The illustrated specimens are listed below.

Figs. 39 and 40

1. A nonaperturate pollen-grain. From sample no. 2.
2. A monoaperturate pollen-grain. From the same sample as a above.
3. A two-winged pollen-grain of *Pinus*. From sample no. 5.
4. A tricolpate baculate pollen-grain. From the same sample as above.
5. A tetracolpate pollen-grain of *Brassica*. From the same sample as above.
6. An Amaranth-chenopod pollen-grain. From the same sample as above.
7. A pollen-grain of *Stellaria*. From the same sample as above.
8. A pollen-grain of *Lychnis*. From the same sample as above.
9. A Juglandioid pollen-grain. From the same sample as above.
10. A *Plantago* pollen-grain. From the same sample as above.
11. A spinuliferous polycorate pollen-grain. From the same sample as above.
12. A *Campanula* pollen-grain. From the same sample as above.
13. A malvaceous pollen-grain. From the same sample as above.

14 and 15. *Pinus* tracheids. From the same sample as above.

16. A smooth-walled pollen-grain. From sample no. 6.
17. A tricolporate, spinous pollen-grain. From the same sample as above.

12. PLANT-REMAINS[1]

A. Introductory

The excavation at Maski, near Raichur, carried out by the Department of Archaeology in 1954, revealed three periods of occupation: (a) Period I: the chalcolithic culture (*circa* first half of the first millennium B.C. to *circa* 400 B.C.); (b) Period II: the megalithic culture (*circa* 200 B.C. to the middle of the first century A.D.); and (c) Period III: the early historical culture (middle of the first century A.D. to *circa* third century A.D.). They yielded some plant-remains, all in the form of charcoal, which were sent to us in six

[1] Contributed by Shri S. S. Ghosh and Shri K. A. Chowdhury, Forest Research Institute, Dehra Dun.

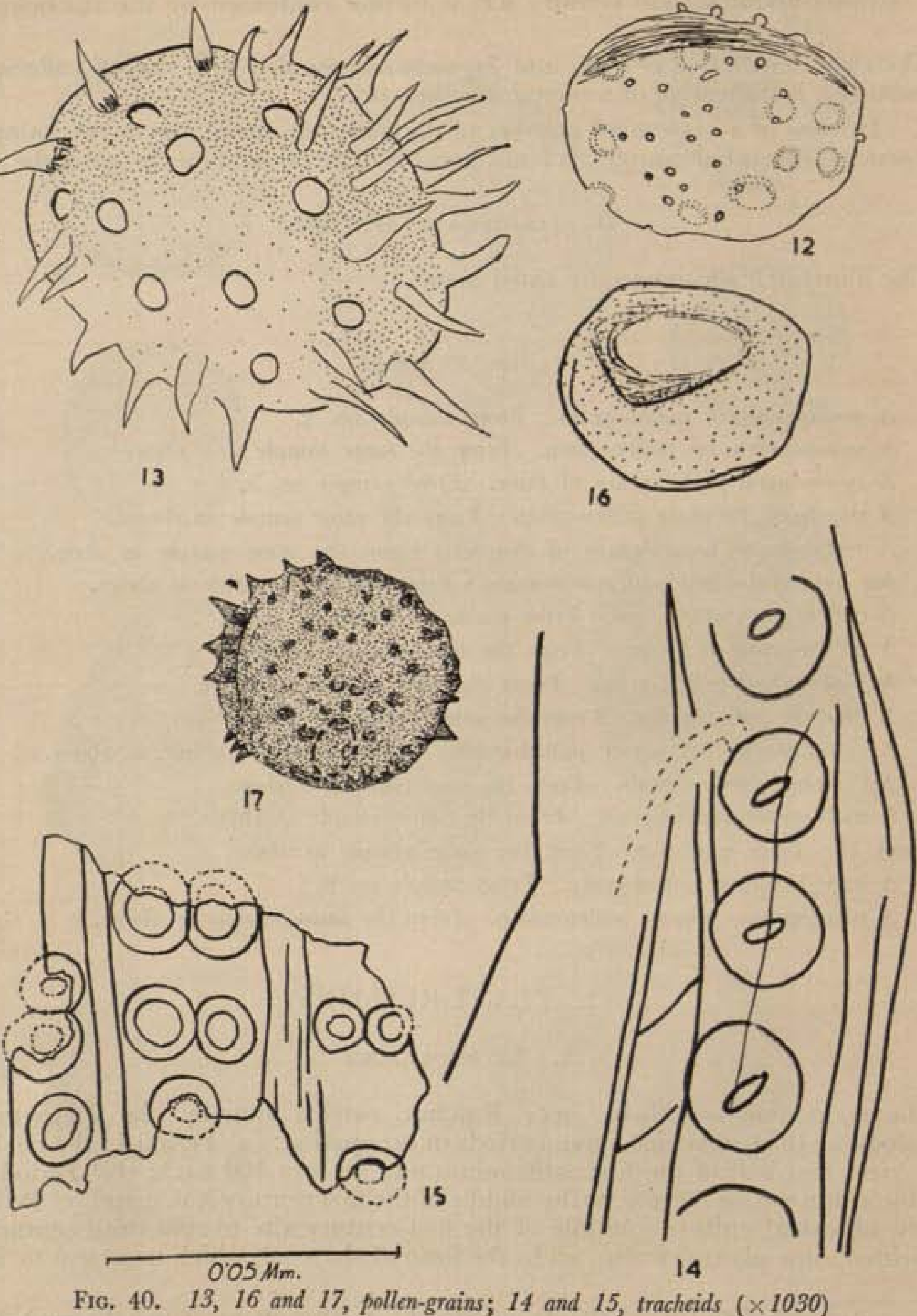


FIG. 40. *13, 16 and 17, pollen-grains; 14 and 15, tracheids* (×*1030*)

different lots. The condition of some of these materials was very bad. Some specimens were so delicate that it was not possible for us to handle them in the usual way. However, after considerable care in this laboratory it has been possible to obtain suitable preparations and identify all of them. The analysis of results show that these charcoal-samples belong to two distinct groups of timber. One group is represented by at least two different species of *Acacia*, and the other by *Chloroxylon swietenia*. All of them are at present important south Indian timbers of great economic value.

B. Material

Shri B. K. Thapar, Superintendent, Department of Archaeology, sent to us the following material.

Sl. No.	Registered No.	Locus	Stratum	Period and probable date
1.	MSK'-10' 15	II'-III'	Pit 1 (latest pit on the site also containing later material)	III: third century A.D
2.	MSK'-10' 67	IX'-XI'	6 (charcoaly depsoit)	II: first century B.C. to first century A.D.
3.	MSK'-10' 73	IX'-XII'	7 (clayey deposit)	II: first century B.C.
4.	MSK'-10' 195	VI'-IX'	8 (alluvial clay and lime)	II: second-first century B.C.
5.	MSK'-10' 250	III'-VI'	Pit 5	II: first century A.D.
6.	MSK'-10' 1056	F'-K'	Pit 29	I: early first millennium B.C.

C. Method of study

The charcoal-samples were mostly small, irregular-shaped, soft and fragile. Quite a good portion of them was in powdery state. The conventional procedure of examination of charcoal by snapping method could not, therefore, be applied, and elaborate microtechnique for cutting thin sections had to be resorted to. Jeffrey[1] and Maby's[2] procedure was generally followed with authors' modifications applied in previous studies.[3] The difficulty was in the removal of mud from the charcoal. Washing with hydrochloric acid usually resulted in the destruction of the material. There was no other alternative but to wash it repeatedly with hot water. After this a short course in carbolic acid was given prior to embedding in celloidin. Here again celloidin dissolved in clove oil gave far better results as compared with celloidin in alcohol-ether. In all cases, charcoal-blocks thus embedded in celloidin were re-embedded in paraffin and the sections ranging from 8-12 μ thick were then possible to cut both on the rotary as well as sliding microtomes. Except one, all photomicrographs were taken by transmitted light.

[1] E. C. Jeffrey, *Anatomy of woody plants* (Chicago, 1917) and *Coal and Civilization* (New York, 1925).

[2] J. C. Maby, 'The identification of wood and wood charcoal-fragments', *The Analyst*, 57 (1932), pp. 2-8.

[3] K. A. Chowdhury and S. S. Ghosh, 'Plant-remains from Hastināpura', *Ancient India*, nos. 10 and 11, *op. cit.*, p. 121, and 'The study of archaeological plant-remains and its significance', *Trans. Bose Res. Instt.*, Calcutta, 20 (1955), p. 81.

D. Results of study and identification

The results of the investigation are reported below.

A. Material from MSK-10, 15: charcoal (fig. *41, 1*; pl. XXXIII, *1-3*)

Gross feature.—Most of the material was too small for a critical examination. Only a few pieces (pl. XXXIII, *1*), measuring about 12mm. × 10 mm., have been studied. They have many longitudinal grooves with irregular edges which give way on slight pressure, separating out into still smaller pieces. Neither pith nor bark has been observed in any of the sample with a hand-lens. The texture appears to be medium coarse and the grain somewhat twisted or interlocked. In gross it shows to be a *diffuse-porous wood.*

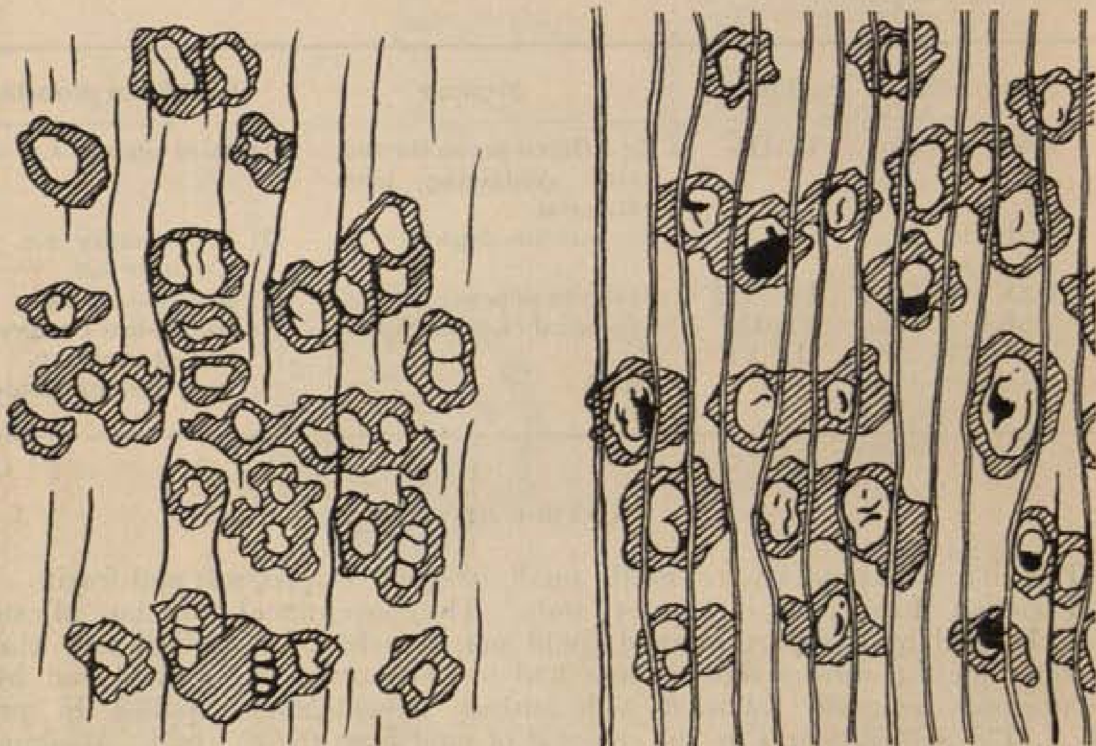


Fig. 41. *1, MSK-10, 15* (×*50*) *and 2, MSK-10,67* (×*50*)*: diagrammatic sketch of cross-sections showing distribution of vessels and arrangement of parenchyma*

Microscopic structure.—*Growth rings* are not visible due to the smallness of the size of the samples; it is not, therefore, possible to be definite about them. *Vessels* are just visible to the eye but are distinct under lens, moderately small— to medium-sized, oval to roundish in shape (fig. 41, *1*), often pressed tangentially; solitary or in radial pairs of 2-4, moderately few to moderately numerous (10-12 per mm.); vessels vary from 90 μ to 150 μ in diameter; tylosses absent but gummy deposit abundant; perforation plates simple, intervessel pits are oval, medium-sized and numerous (seen in un-mounted sections). *Parenchyma* cells paratracheal; usually vasicentric (fig. 41; pl. XXXIII, *2*) but occasionally may extend sideways. *Fibres* mostly deformed due to deterioration but semilibriform to libriform in better-preserved portions; roundish in cross-section and irregularly arranged. *Rays* are 1-7 seriate (mostly 4-5), maximum height—22 cells and 330 μ, and width 7 cells and 75 μ; homogeneous. The individual cells are round to oval.

IDENTIFICATION.—*Acacia* spp. (*Leguminosae-Mimosoidae*); although diffuse apotracheal parenchyma cells were not clearly visible, yet the possibility of their presence in the normal wood cannot be ignored.[1]

B. MATERIAL FROM MSK-10, 67: CHARCOAL (fig. 41, *2*; pl. XXXIII, *4-5*)

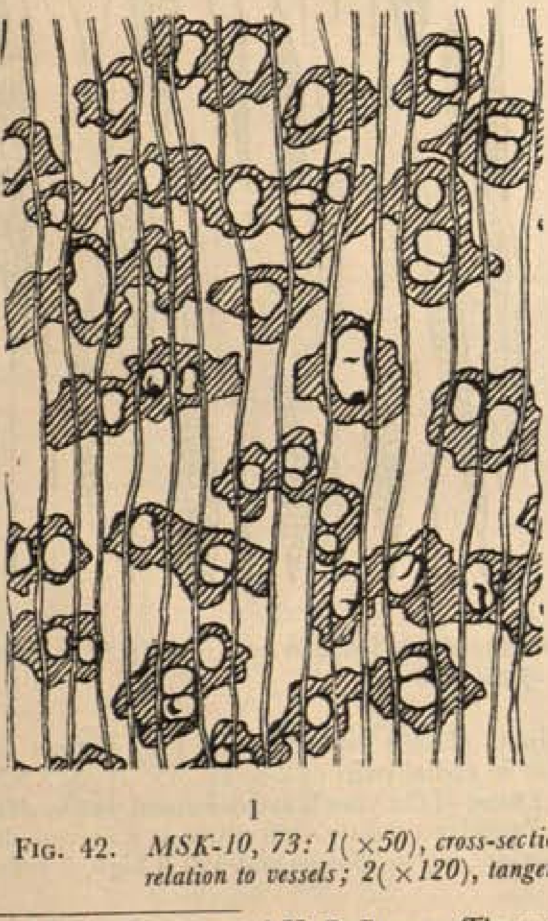
GROSS FEATURE.—A few pieces of 20 mm. ×12 mm., 16 mm. ×8 mm. and 12 mm. ×10 mm. size are worth investigating (pl. XXXIII, *4*). The rest is very fragile. In gross it gives the impression of a *diffuse-porous* and somewhat fine-textured wood.

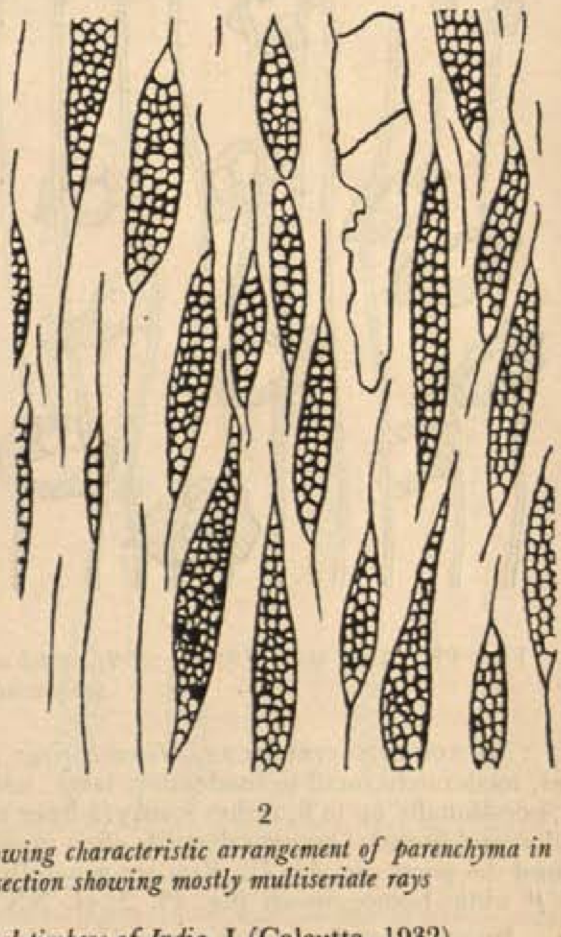
MICROSCOPIC STRUCTURE.—*Growth rings* are not visible due to limited field of observation. *Vessels* visible to the naked eye, moderately small to medium in size (fig. 41, *2*; pl. XXXIII, *5*). *Parenchyma* cells are distinct on the end surface showing up conspicuously against the black background of fibres. They are vasicentric, surrounding the vessels entirely in thin to thick sheath. In other respects there is a general similarity with the specimen MSK-10, 15.

IDENTIFICATION.—*Acacia* spp. (*Leguminosae-Mimosoidae*).

C. MATERIAL FROM MSK-10, 73: CHARCOAL (fig. 42, *1* and *2*; pl. XXXIII, *6-10*)

GROSS FEATURE.—Charcoal pieces are very few, usually being 12 mm. × 8 mm. and 10 mm. ×5 mm. in size (pl. XXXIII, *6*). They are irregular in shape, soft and fragile. From the gross features, it appears to be a *diffuse-porous wood*.





1 2

FIG. 42. *MSK-10, 73: 1(×50), cross-section showing characteristic arrangement of parenchyma in relation to vessels; 2(×120), tangential section showing mostly multiseriate rays*

[1] R. S. Pearson and H. P. Brown, *The commercial timbers of India*, I (Calcutta, 1932).

MICROSCOPIC STRUCTURE.—*Growth rings* not observed in the specimens examined. *Vessels* just visible to the eye but distinct under hand-lens, small to medium, tangential diameters vary from 45 μ-180 μ, mostly solitary, occasionally may be in radial pairs of 2-3, round to oval in shape (fig. 42, *1*; pl. XXXIII, *7*), moderately few to moderately numerous, evenly distributed (8-13 per mm.²); dark brown deposits often fill up the pores. *Parenchyma* visible distinct under hand-lens as lighter-coloured tissue on the end surface, distinct under the microscope as a sheath round the vessels (vasicentric), sometimes extending sideways to form somewhat confluent bands linking nearby vessels (fig. 42, *1*; pl. XXXIII, *8*). *Rays* not distinct under lens on the end surface but often noticeable on the radial surface as inconspicuous flecks; mostly 3-5 seriate; in height up to 26 cells and 420 μ, while 6 cells and 60 μ in width; homogeneous (fig. 42, *2*; pl. XXXIII, *9*).

IDENTIFICATION.—*Acacia* spp. (*Leguminosae-Mimosoidae*).

D. MATERIAL FROM MSK-10, 195; CHARCOAL (fig. 43, *1* and *2*; pl. XXXIV, *1-3*)

GROSS FEATURE.—This lot contains charcoal-pieces with no soil mixed with it. Some of the pieces are also of bigger size, often being 27 mm. ×17 mm. and 22 mm. ×18 mm. (pl. XXXIV, *1*). It appears to be a *diffuse-porous wood* with somewhat interlocked grain.

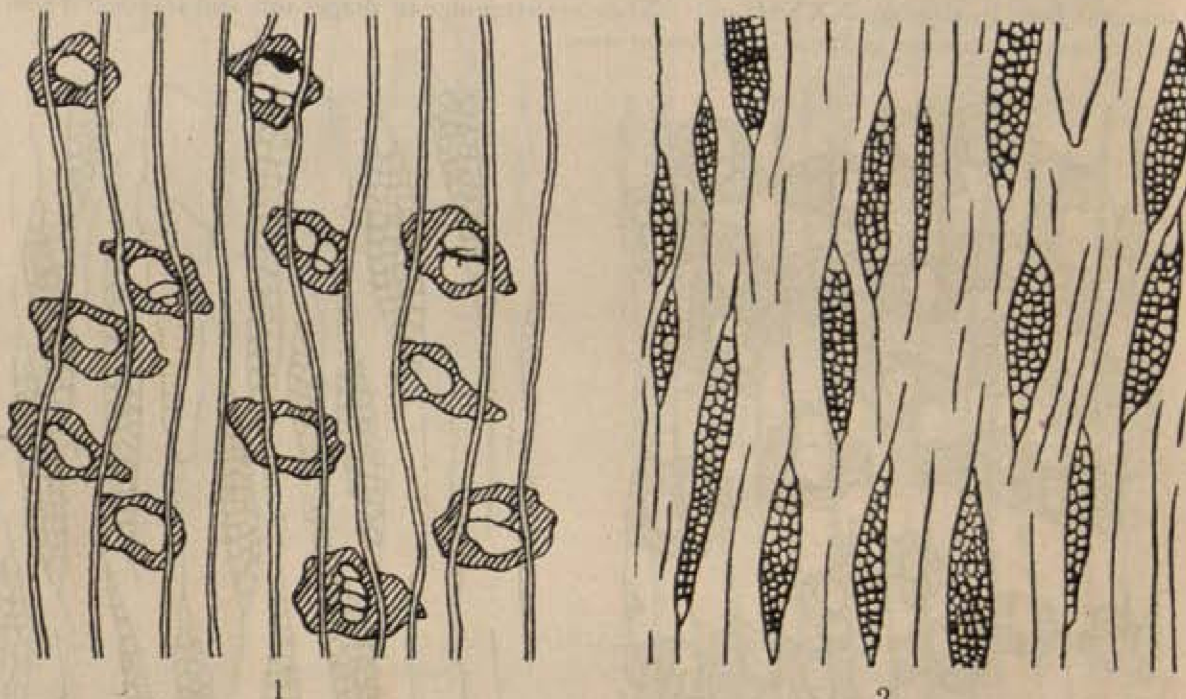


FIG. 43. *MSK-10, 195: 1 (×50), vessel and parenchyma distribution in cross-section; 2 (×120), tangential view of the rays*

MICROSCOPIC STRUCTURE.—*Growth rings* indistinct. *Vessels* visible to the eye, distinct under lens, moderately small to moderately large, solitary or in radial pairs of 2-3 (fig. 43, *1*; pl. XXXIV, *2*), occasionally up to 6, rather scanty (5-8 per mm.²); most of the vessels are deformed due to deterioration and presure; gummy deposits often present. *Parenchyma* mostly vasicentric as a narrow sheath round the pores (fig. 43, *1*). *Rays* are generally 3-6 seriate, up to 38 cells and 450 μ high, 7 cells and 75 μ wide; homogeneous (fig. 43, *2*; pl. XXXIV, 3).

IDENTIFICATION.— *Acacia* spp. (*Leguminosae-Mimosoidae*).

E. Material from MSK-10, 250; charcoal (fig. 44, *1* and *2*; pl. XXXIV, *4-9*)

The material contains pieces of charcoal belonging to two distinct trees. These are being described below as Group I and Group II.

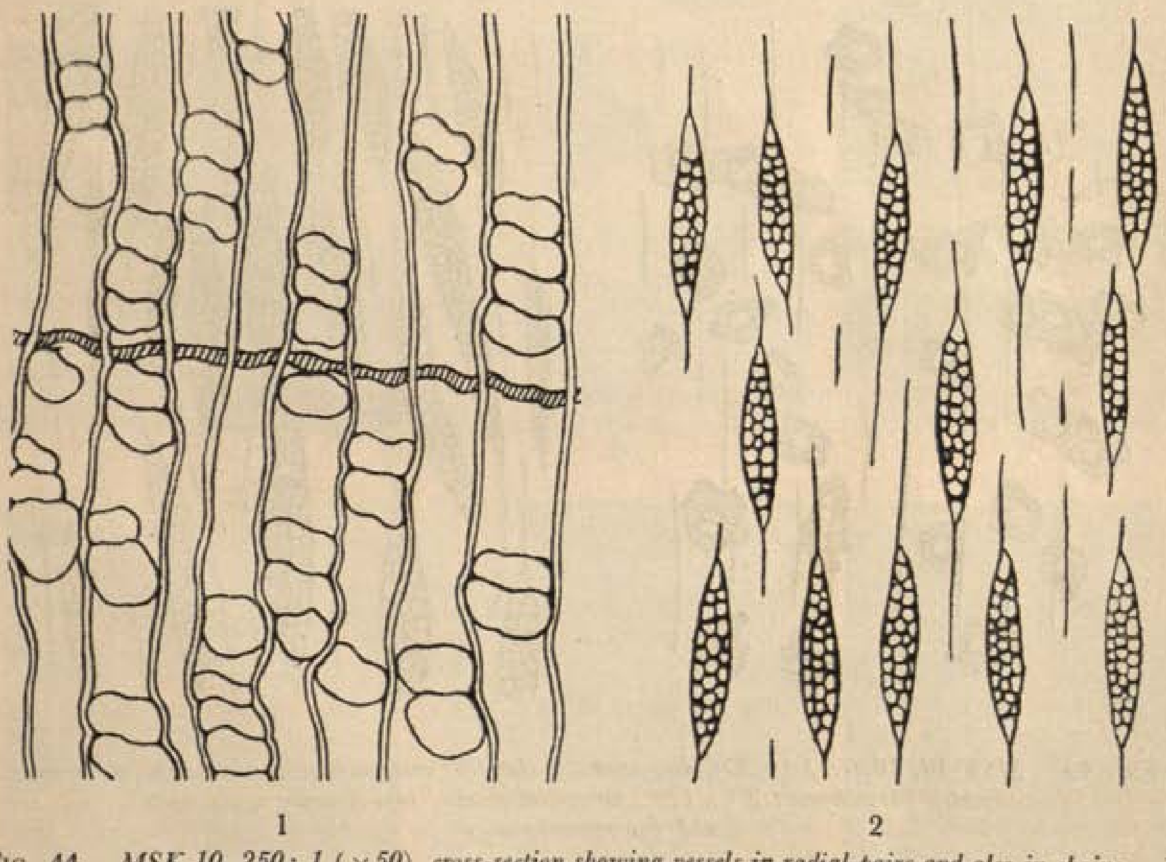
(i) *Group I* (pl. XXXIV, *4-6*)

Gross feature.—The charcoal-pieces consist of classes with several sizes, ranging from 7 mm. ×7 mm. to 30 mm. ×19 mm. (pl. XXXIV, *4*), They are irregular in shape but fairly heavy and interlocked grained. On the end surfaces, all the samples show both vertical and horizontal cracks. It is a *diffuse-porous wood.*

Microscopic structure.—*Growth rings* are not distinct. *Vessels* are moderately small to moderately large, 90 μ-225 μ in diameter, often solitary, sometimes in radial or oblique pairs of 2-3 or 4 (pl. XXXIV, *5*), rather scanty in number, (6-10 per mm.^{2}). *Parenchyma* vasicentric, forming conspicuous sheath round the pores or at times aliform but seldom extend sideways to form tangential or confluent bands (pl. XXXIV, *5*). *Rays* are moderately broad and visible under lens, usually 5-6 seriate and homogeneous (pl. XXXIV, *6*).

Identification.—*Acacia* spp. (*Leguminosae-Mimosoidae*).

(ii) *Group II* (pl. XXXIV, *4* and *7-9*)



1 2

Fig. 44. *MSK-10, 250: 1 (×50), cross-section showing vessels in radial pairs and also in chains, with parenchyma in narrow tangential band; 2 (×120), tangential section showing ripple-marks*

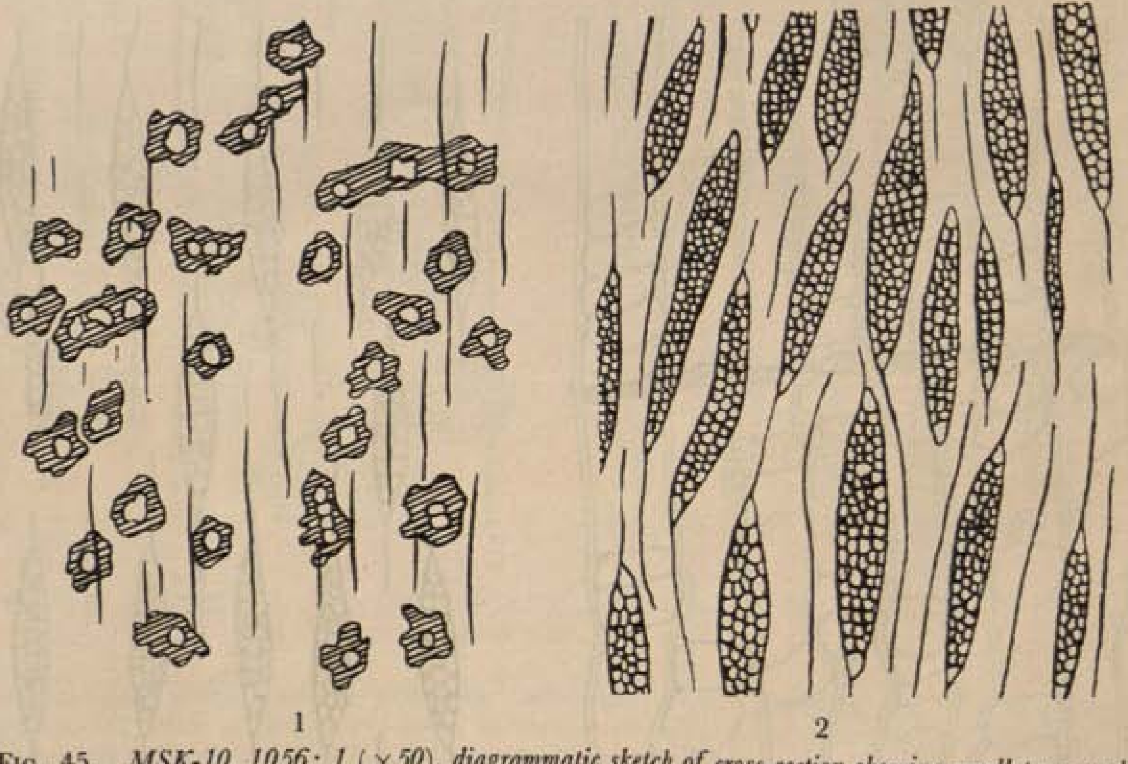
GROSS FEATURE.—These charcoal-pieces are smaller in size than those of Group I, the largest being only 20 mm. × 17 mm. (pl. XXXIV, *4*). They appear slightly interlocked-grained, even- and fine-textured. It is also a *diffuse-porous wood* with much smaller and numerous pores as compared with Group I.

MICROSCOPIC STRUCTURE.—*Growth rings* are visible in the bigger pieces, delimited by 2-3 cells wide tangential parenchyma (initial) bands (fig. 44, *1*; pl. XXXIV, *8*). *Vessels* are indistinct to the eye, visible only under lens, small numerous and arranged in distinct radial pairs of 2-7, mostly 2-5. In size they are 75 μ-90 μ in diameter and evenly distributed about 50 per mm.^{2} or even more, with a tendency for radial chains (fig. 44, *1*; pl. XXXIV, *7* and *8*). *Vessels* are empty and often irregular in shape due to pressure. *Parenchyma* is in concentric or tangential lines composed of 2-3 'initial' cells delimiting growth rings which are more or less evenly distributed. *Rays* are rather fine, distinct under the microscope, upto 11 cells and 225 μ high, 3-4 seriate and 45μ wide, homogeneous and arranged in fairly distinct tiers (fig. 44, *2*). *Ripple marks* fairly distinct (pl. XXXIV, *9*).

IDENTIFICATION.—*Chloroxylon swietenia* (Rutaceae), commonly known in the trade as satinwood.[1]

F. MATERIAL FROM MSK-10, 1056: CHARCOAL (fig. 45, *1* and *2*; pl. XXXIV, *10-12*)

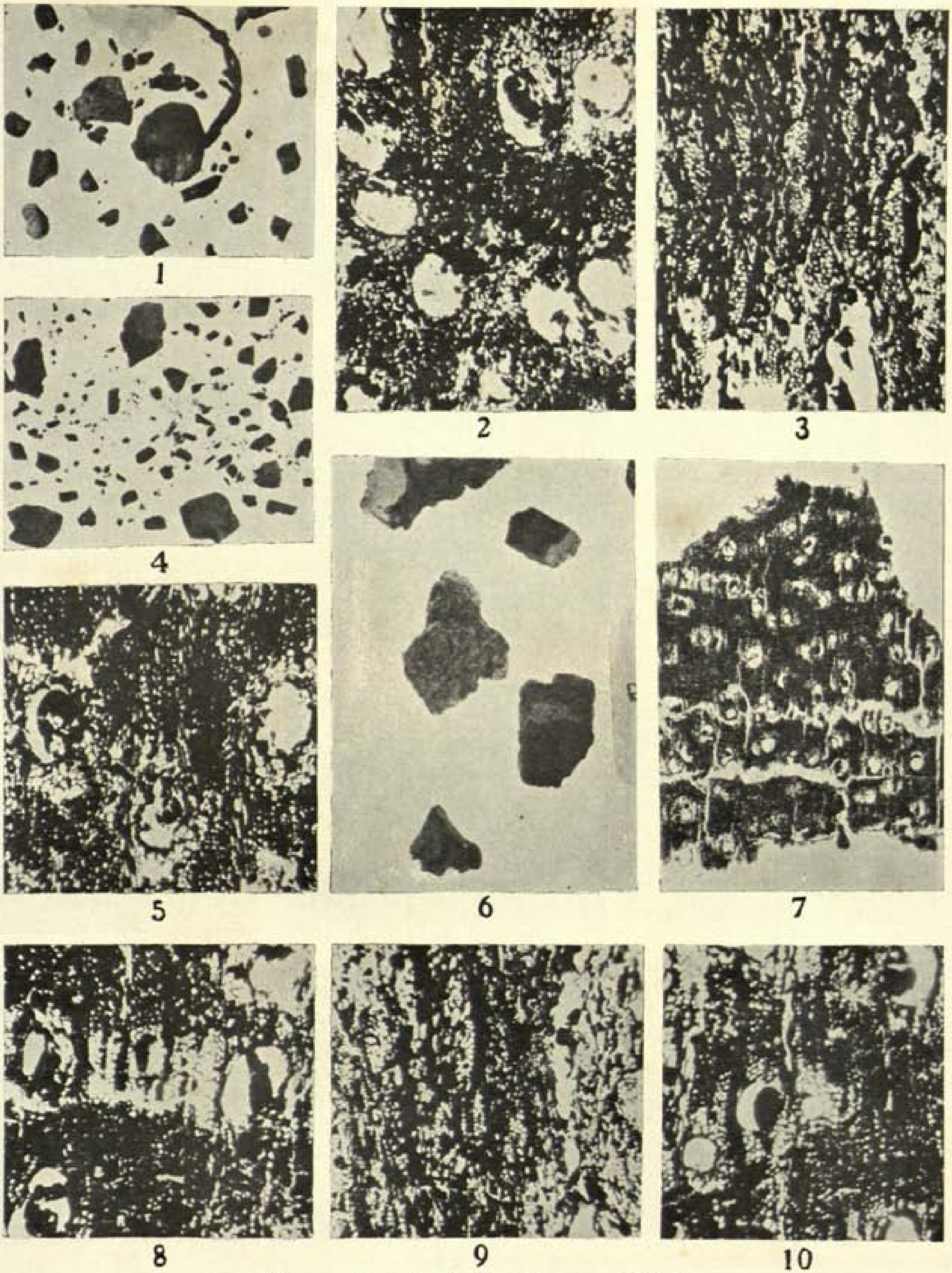
GROSS FEATURE.—The sample is small and extremely fragile (pl. XXXIV, *10*), about 3-4 mm. × 5-6 mm. in size. The field of observation has been so limited that gross structure is not easily recognizable. No piece contained more than a couple of vessels. It is a *diffuse-porous wood* with interlocked grain.



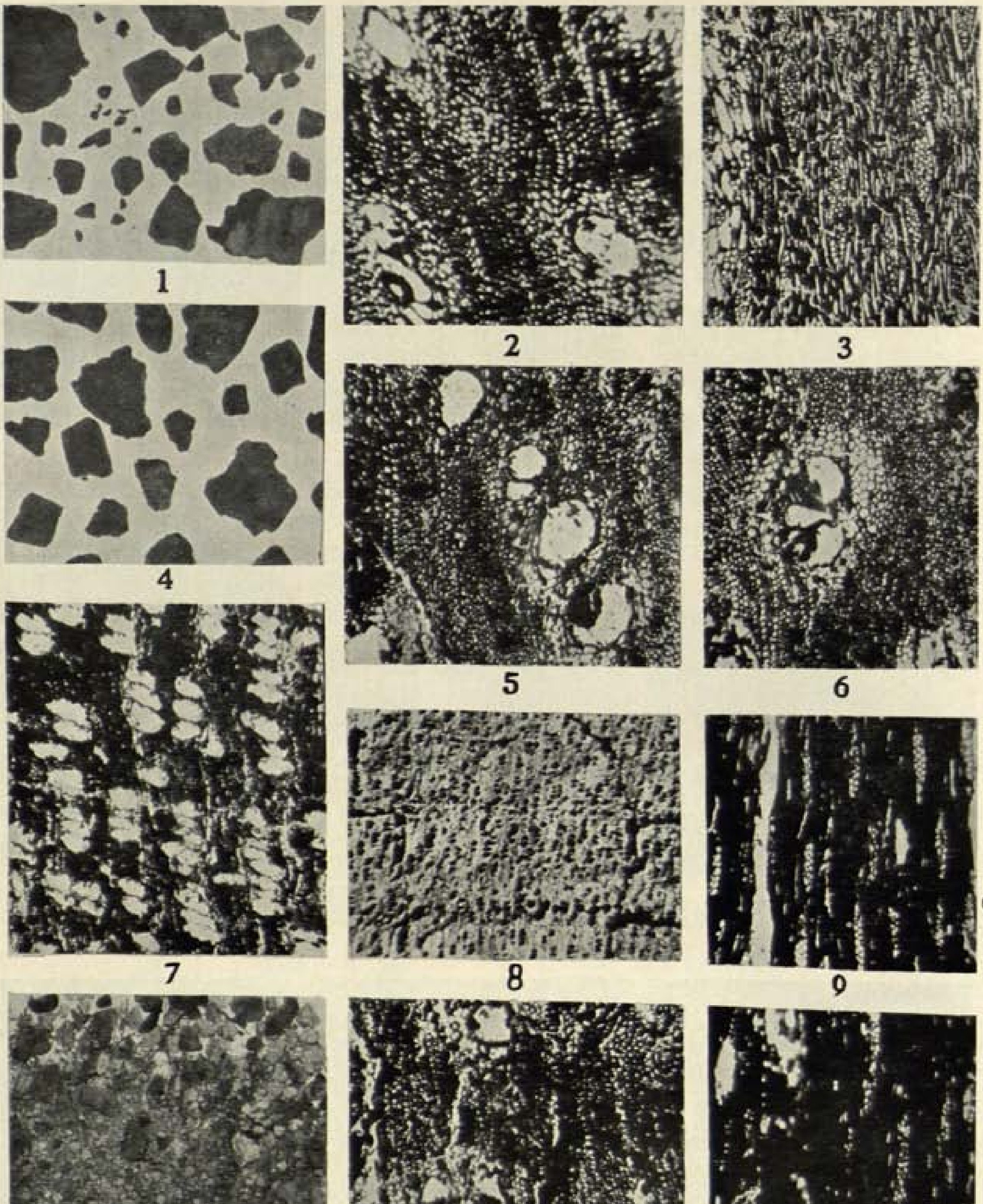
1 2

FIG. 45. *MSK-10, 1056: 1 (×50), diagrammatic sketch of cross-section showing small pores and vasicentric parenchyma; 2 (×120), tangential view of rays showing multiseriate and homogeneous rays*

[1] Pearson and Brown, *op. cit.*, (1932).



Plant-remains: Acacia spp. *See pages 136-38*



Plant-remains: 1-6, Acacia spp.; 7-9, Chloroxylon swietenia; 10-12, Acacia spp. *See pages 138-42*

MICROSCOPIC STRUCTURE.—*Growth rings* not observed. *Vessels* are usually small, scanty. They are mostly round to oval (fig. 45, *1*; pl. XXXIV, 11), occasionally in radial pairs of 2 or 3, rarely 2-4 vessels may be aligned in tangential directions also; dark deposits partially fill up the vessel cavity. *Parenchyma* cells are visible under the microscope as thin sheath round the vessels (fig. 45, *1*), occasionally extend sideways and join with those of the adjoining vessels. *Rays* are not well-preserved and are seen with difficulty on the tangential section (fig. 45, *2*; pl. XXXIV, *12*). They appear about 20 cells high, 3-4 seriate and homogeneous.

IDENTIFICATION.—*Acacia* spp. (*Leguminosae-Mimosoidae*).

E. GENERAL REMARKS

The charcoal-remains come from three occupational periods ranging from *circa* first half of the first millennium B.C. to third century A.D. All the samples belong to *Acacia* spp. except one, viz. *Chloroxylon swietenia*. From the botanical point of view it is not possible to say much. The state of decomposition of the samples was such that it has not been possible for us to find out definitely the species of *Acacia* to which the different samples belong. This fact prevents us from indicating whether these charcoal-remains come from trees which are now growing in this very locality or from those *Acacias* which no longer grow there and have migrated to suitable localities elsewhere. As regards *Chloroxylon swietenia*, the tree still grows in this locality though scattered in the forest along with different species of *Acacia*.[1] Investigations of these plant-remains do not allow any interesting conclusion from archaeological point of view. Nevertheless, the use of *Acacia* spp. and *Chloroxylon swietenia* will lead one to think that the inhabitants of the place excavated had some idea of the value of these timbers either as firewood or as charcoal. At present, these timbers are considered to be one of the best woods for charcoal and fuel-purposes.[2]

F. SUMMARY

1. Charcoal-remains collected during the archaeological excavation at Maski near Raichur in 1954 have been microscopically examined.

2. The site has revealed three occupational periods, ranging from *circa* first half of the first millennium B.C. to the third century A.D.

3. Altogether seven samples have been examined from different strata. Six of these have been identified as *Acacia* spp. and the remaining one as *Chloroxylon swietenia* (satinwood). It appears that more than one species of *Acacia* were used during these periods.

4. Both *Acacia* spp. and *Chloroxylon swietenia* trees grow even now in the forests nearby and produce excellent wood for fuel and charcoal. This may indicate that these timbers were locally available to the inhabitants of Maski and also they were aware of the special properties of these woods.

G. ACKNOWLEDGEMENTS

Our thanks are due to Sarvashri B. S. Negi, Krishan Lal and Babu Lal for their help in the laboratory.

[1]R. S. Troup, *Silviculture of Indian Trees*, I (Oxford, 1921).

[2]S. Krishna and R. Ramaswami, 'Calorific values of some Indian woods', *Indian Forest Bulletin* (N.S.), 79, 1932.

EXPLANATION OF PLATES

Pl. XXXIII

Acacia spp. (MSK-10, 15)

1. Charcoal (natural size).

2. Transverse section showing size and distribution of vessels. Note vasicentric parenchyma and deteriorated fibres (×63).

3. Tangential section showing multiseriate (4-5 rays (×63).

Acacia spp. (MSK-10, 67)

4. Charcoal (natural size).

5. Transverse section showing arrangement of parenchyma cells round the vessels (× 63).

Acacia spp. (MSK-10, 73)

6. Charcoal along with lump of soil (natural size).

7. Transverse section showing general distribution and arrangement of vessels (×10).

8. A part of transverse section to show linking up of vessels by parenchyma bands (×63).

9. Tangential section showing 3-5 seriate rays (×63).

10. Transverse section from another sample showing distinct vasicentric parenchyma round the pores (×63).

P. XXXIV

Acacia spp. (MSK-10, 195)

1. Charcoal (natural size).

2. Transverse section showing deformed, scanty vessels and vasicentric parenchyma (×63).

3. Tangential section showing mostly 3-6 seriate, homogeneous rays (×63).

Acacia spp. (MSK-10, 250)

4. Charcoal. Larger pieces are *Acacia* spp., the smaller ones are *Chloroxylon swietenia* (natural size).

5. Transverse section showing vessel with conspicuous vasicentric parenchyma (×63).

6. Transverse section showing somewhat oblique arrangement of vessels (×63).

Chloroxylon swietenia (MSK-10, 250)

7. Transverse section under high magnification to show distinct vessel chains (×63).

8. Transverse section showing vessels in radial pairs and also in chains. Note faint tangential lines of parenchyma delimiting growth (×10).

9. Tangential section showing characterstic arrangement of rays producing ripple marks (×63).

Acacia spp. (MSK-10, 1056)

10. Charcoal mixed with mud. Note fragile nature of the material (natural size).

11. Transverse section showing general distribution of vessesl and parenchyma cells. Note deteriorated nature of the vessels and fibres (×63).

12. Tangential section showing multiseriate rays (×63).[1]

[[1] Received on the 15th February 1957.—Ed.]

TECHNICAL SECTION

PRESERVATION OF A TEXTILE AND A MINIATURE PAINTING

By T. R. Gairola

1. TEXTILE

THE specimen was an eighth-century fragmentary textile from Central Asia. It was printed with star-patterns in yellow on a red background, which was identified as silk by an examination under microscope (pl. XXXV A).[1] The specimen had a fine texture, but its fabric, in the last stage of deterioration, had become so brittle that a mere touch was sufficient to crumble it to dust. The heap of its fragments could not, therefore, be handled easily. Repairs by darning was out of the question and stitching the fabric to a backing was equally impossible as the fragments had lost all strength. Neither the pattern of the textile nor the design of the print was recognizable. Pl. XXXV B shows the extent of the disintegration: the particles formed by the lightest pressure are visible on it.

The long molecular chain in a textile accounts for its physical properties, such as tensile strength, elasticity, suppleness, resistance towards bending, etc. Ageing effect caused by temperature, variations in humidity, light and oxygen breaks this chain; consequently, the textile loses all its characteristic features and becomes brittle and cannot stand even the slightest strains.

The preservation of the present textile involved the following processes in succession: (1) removing the superficial dust; (2) strengthening the fragments; (3) opening the folded pieces; (4) removing the creases, straightening out the fragments and separating them from the junk; (5) putting the fragments in position, as far as possible, and arranging them in their right places with respect to the warp and weft and designs on them; (6) cleaning them; (7) fixing them on some strong background with an adhesive; and (8) putting the jointed textile on a sunken mount-board for exhibition or storage.

The textile, which had been wrapped in a piece of paper, had to be transferred on Nepalese tissue-paper for preservative treatment. A piece of tissue-paper, big enough to accommodate the complete textile when opened out and stretched, was kept over the junk and a cardboard-piece put on it. The whole unit, consisting of the wrapping paper, the tissue-paper and the cardboard, was turned upside down, so that the textile was now on the tissue-paper. The cardboard underneath was then slided out and a glass sheet

[1]The illustration shows the photomicrograph of cotton, silk and wool fibres. An identification of the fibre is necessary before repairs and preservation are undertaken. Burning test is also helpful: textiles of vegetable origin (cellulosic base) give out the odour of scorched paper and textiles of animal origin (protein base) of scorched hair. A scheme for preservation can be formulated only after the identification of the fibre.

inserted in its place. The loose tissue-paper was wetted at the corners and fixed to the glass by pasting. The superficial dust was carefully removed from the textile with a soft sable brush. The fragments were then strengthened with 1 per cent methyl-methacrylate solution in a mixture of 75 per cent toluene, 24 per cent alcohol and 1 per cent dibutyl-phthalate. The lines of folds were treated with a mixture of alcohol and water and the folded pieces opened out. The creases were immediately pressed with a flat spatula, so that the acuteness of the creases was reduced. It was now possible to separate the fragments from the junk. Individual pieces were given the necessary number of preservative coatings to strengthen them. Pl. XXXVI A shows the fragments thus strengthened and separated, with newly-revealed, though fragmentary, printed patterns occurring here and there.

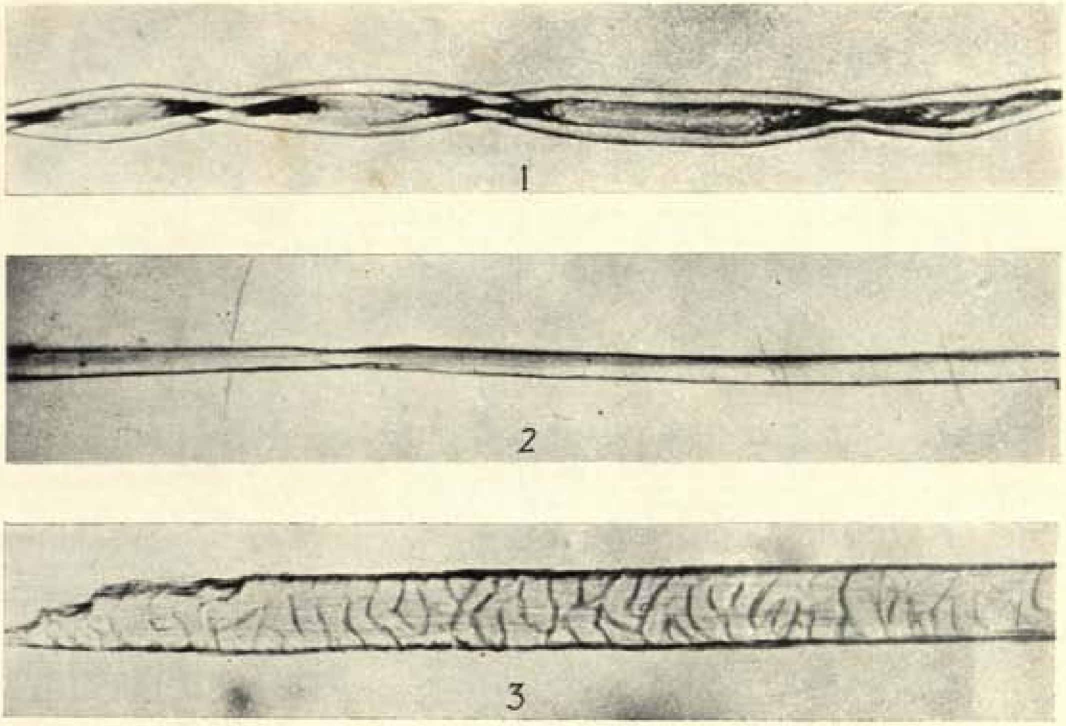
The fragments were now fit for safe handling with a pincer and spatula. They were arranged, as far as feasible, in a proper position, with regard to the warp and weft of each fragment and the printed designs on them. It was possible to make out the design of the printed portion on the fragments, which were found to be exactly fitting with each other. This gave the clue to the original set-up of the textile. This part of the work needed great perseverance.

The pieces having been arranged, the process of cleaning was taken up. The glass plate with the tissue-paper and the loosely-arranged fragments was kept inclined (1 in 60), so that aqueous solutions used in cleaning could run out slowly over the fragments without disturbing their position. The fragments were carefully wetted with a dilute aqueous solution of cetavlon by means of a sponge. The cetavlon was allowed to work for some time, and then a slow current of water was run from the topside and a sable brush was passed over the fragments. A very gentle flow of water was maintained through the apparatus illustrated in *Ancient India*, no. 8 (1952), p. 94, fig. 1. By adjusting the inclination of the glass plate holding the textile it was possible to make the fragments float freely, and this facilitated the movement of the individual fragments to their correct positions in relation to the adjacent fragments. When washing was complete, the excess water was drained off, and the back of the fragments was subjected to a similar washing treatment by turning the textile upside down with the help of another tissue-paper fixed on the glass plate. Water-treatment completely eliminated all the creases, imparted pliability to the fabric and helped in the restoration of the warp and weft of the textile to their proper places.

This having been achieved, the exposed reverse side was mounted on a silk background with starch paste containing sodium arsenite insecticide and saffrol. The textile was then brought on the silk and put in a sunken mount-board. Pl. XXXVI B shows its condition after preservation.

2. MINIATURE RAJASTHANI PAINTING

This painting was torn at several places and had creases and folds all over its surface. It was further covered with secondary water-colours of green, white, blue and bluish-white tints, applied by a faker for masking the damaged and deteriorated original background and enriching it with fresh colours, which, at the same time, covered the delicacy of the original miniature by hiding and obscuring the details. On the top right corner was written *śrī Rāmachandra-ji rau rāja-tilaka* in two lines. At first sight the somewhat skilful overpainting was not discernible, specially because the legend aptly gave the title of the painting; but when carefully examined, the rounded paint-edges and the abrupt break in

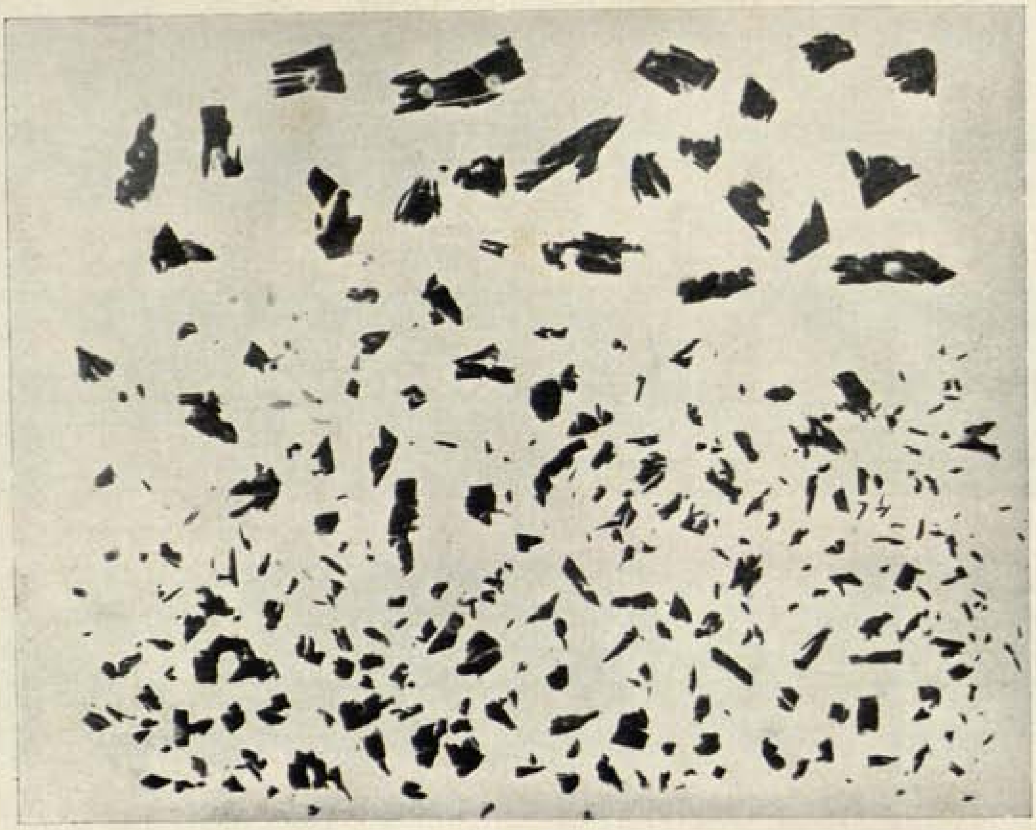


A. *Photomicrographs of 1, cotton, 2, silk, 3, wool,* ($\times 200$). *See page 143*

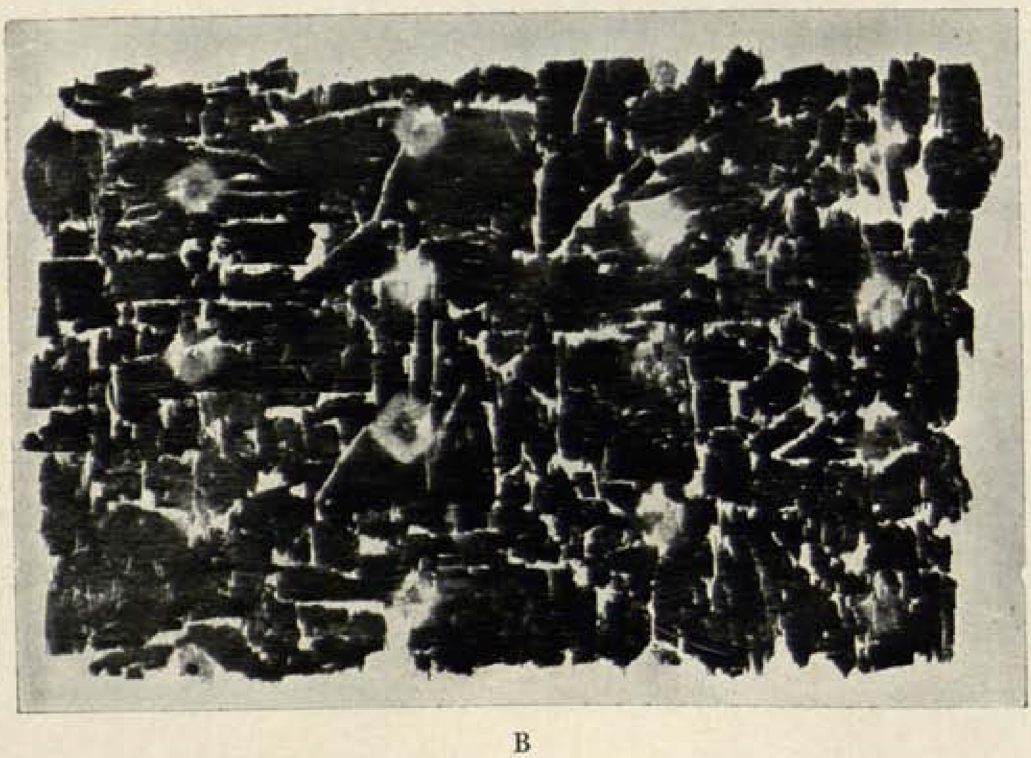


B. *Fragmentary painting from Central Asia, before preservation. See page 143*

To face plate XXXVII

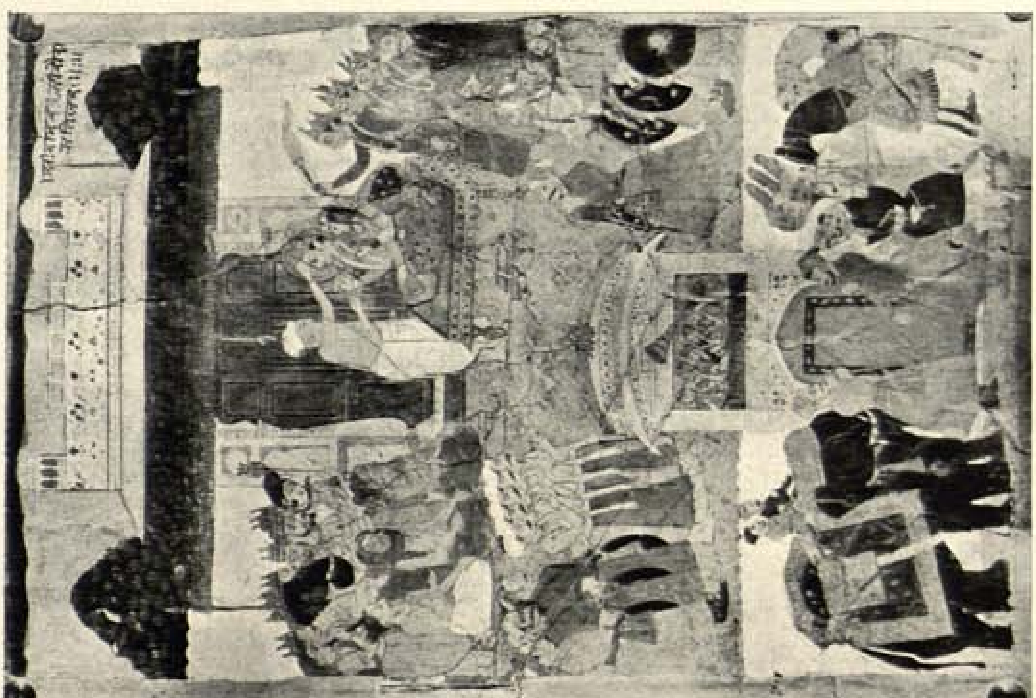


A

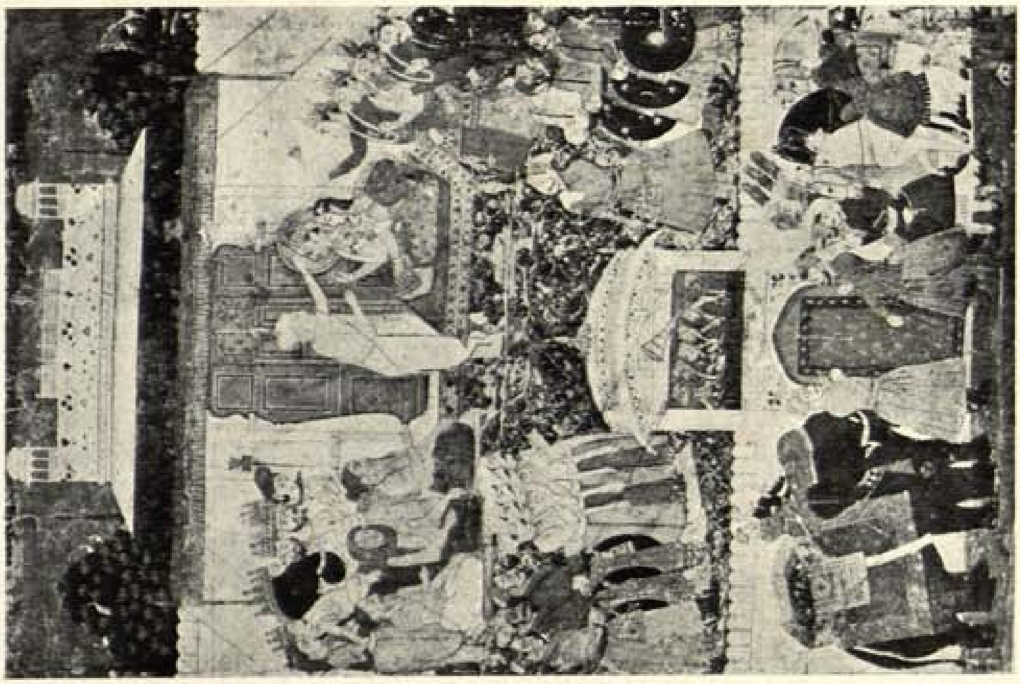


B

Fragmentary painting from Central Asia: A, during, and B, after, preservation. *See page 144*



A



B

Rajasthani painting: A, before, and B, after, preservation. *See page 145*

the flow of the outlines of the figures and other subjects revealed the later paintings, which had completely disturbed the Rajasthani characteristics of the background of the miniature.

The miniature was found covered with two layers of paper pasted on the back at some later date to serve as a support. The paper on which the painting was executed had become porous and spongy and its sizing material had been destroyed, with the result that its cellulosic texture was visible wherever the paint-layer had scaled off. It seemed correct to presume that in order to hide these damaged spots as well as to give a bright toning effect to the painting, the faker had used his pigments lavishly. Pl. XXXVII A shows the condition of the miniature before treatment.

The preservative treatment of the painting called for the adoption of the following processes: (1) removing the overpaint; (2) fixing the original water-colour pigments of the painting; (3) removing the supporting paper-mounts from its back; (4) eliminating the folds and creases; (5) removing the sticking paste left over, after the removal of back support; (6) mounting the painting on a fresh support of Nepalese tissue-paper; and (7) applying a preservative coating on it.

Since the colours used by both the original artist and the faker were water-soluble, the removal of the later colours without disturbing the former presented a great difficulty, as any method used to preserve the original pigments would simultaneously preserve the later ones as well. However, experiments done on a corner of the miniature showed that while the overpaint softened very easily and quickly when moistened with water, the original colours required a little more time and greater friction for such softening. This differential behaviour of water towards the two sets of pigments suggested a procedure for the removal of the overpaint without disturbing the original painting underneath. Small tufts of cotton of the diameter of $\frac{1}{8}$ to $\frac{1}{4}$ in. fixed to tips of bamboo tooth-picks were wetted, put on the overpaint and given a circular movement. This softened the upper pigments. The process was repeated till nothing of them was left. It so happened that during the operation the background and support of the original painting also became sufficiently wet and softened and showed signs of abrasion when the last tuft of cotton was swirled over. Whenever it was noticed, alcohol was immediately applied as a restrainer. The porous nature of the paper contributed to the difficulties in this direction.

After the removal of the overpaint, the pigments of the original painting were fixed with two coatings of 1 per cent methyl-methacrylate solution in toluene and alchohol. The painting was then turned upside down on a tissue-paper mounted on glass sheet and the dirty layers of paper were removed from the back by the usual processes of softening and washing. The excess paste was scraped and washed off in running water. The painting was then reversed and all creases and folds removed from the front side with the help of a spatula. It was then subjected to a general cleaning treatment and finally given a backing of two coatings of Nepalese tissue-paper and stretched well as usual. As the paper on which the painting was executed was fragile, porous and spongy, it was found necessary to coat it thoroughly with 1 per cent preservative solution once again. Pl. XXXVII B shows its condition after treatment.[1]

[[1]Received on the 25th July 1957.—Ed.]

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